AMSTRAD COMPUTER USER

THE OFFICIAL AMSTRAD CPC MAGAZINE

MARCH 1990
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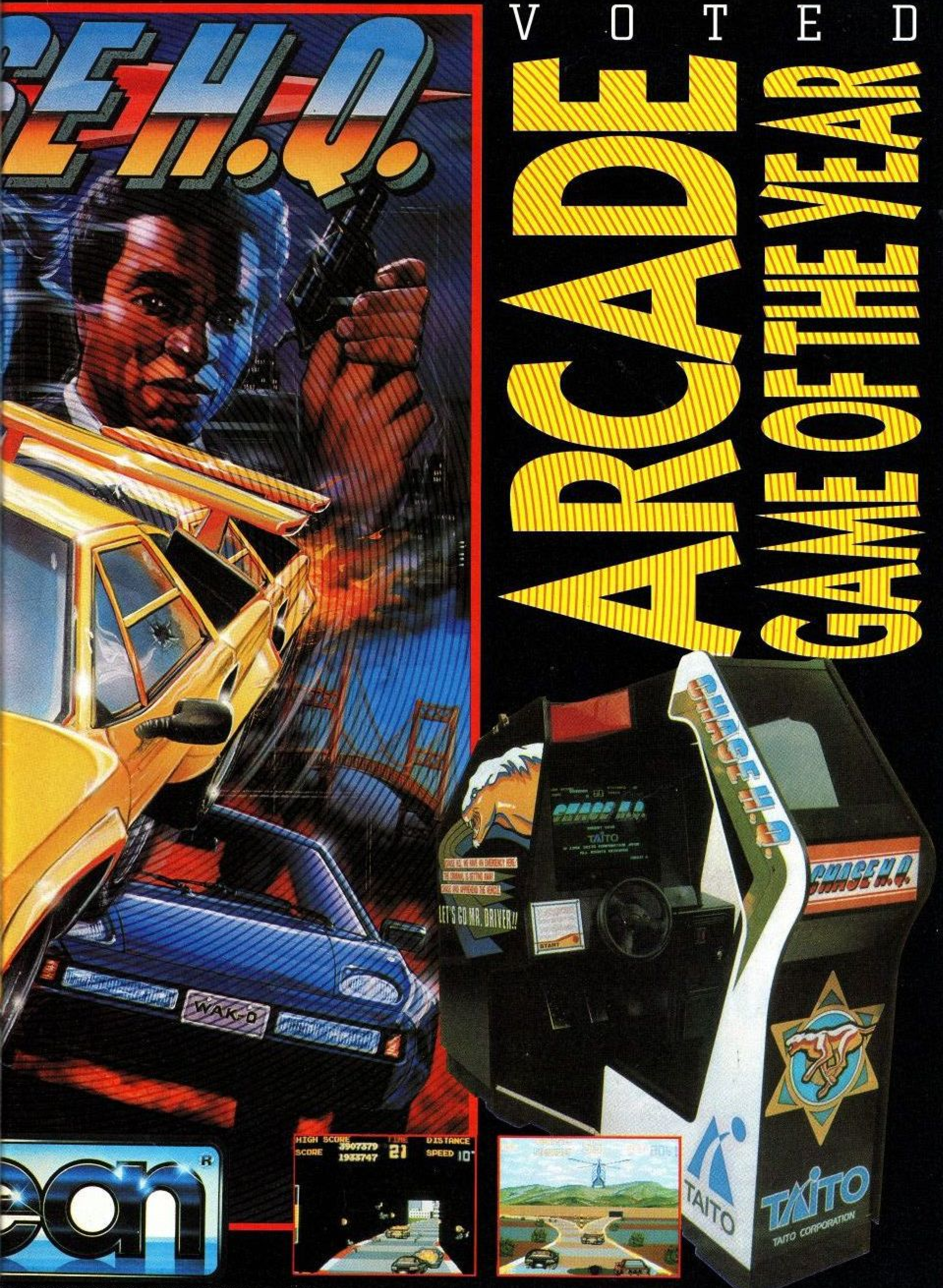
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REGULARS



FEATURES

LETTERS



Dave rave

I recently upgraded to a CPC 6128, having passed my trusty 464 on to my young grandson. It had given great service for over four years and was still going strong, so he was delighted. The reason was that I had acquired a Rom Box and a Protext Rom which, together with a DD1 disc drive, had cluttered things up.

I then required a new printer. After scouting through the reviews I decided on a DMP 3160 which was described as a good buy. Imagine my disgust when I found that the thing persisted in printing double line spaces no matter what codes I input. Well, I was on my way to the dustbin with it when I suddenly recalled reading that this was a general problem with printers. So into my stack of mags I dived. There it was in the ACU July issue Applications Page by Saint David Dorn. This saviour of obstinate printers fully and clearly described the ailment, which turned out to be due to a renegade Pin 14. The application of a slither of masking tape effected a cure exactly as Saint David predicted, and the 3160 is now on its best behaviour.

Would you please convey to David my most effusive gratitude for the solution to my problem. May his tribe increase.

Chas Watts, East Ham, London E6 3HD.

Snow for it

In the December issue of ACU Auntie John published a "Snow" program. The version in Basic gave only synthetic snow but adding the following lines to the program gives you the choice of real or synthetic snow:-

```
75 input "real snow (y/n)"; a$
76 If lower$ (a$)= "y" then poke &8054, &36
```

This section of the magazine is one of my favourites so keep up the good work.

David Hall, Stretford, Manchester, M32 9HA.

ACU: The program was a little premature but the thought counted. The idea of adding real snow is great, providing you insulate your CPC first, or else sparks may fly.

Modulators

I have a CPC 464 and a green screen monitor but I want to use my television set, so need a modulator suitable for the 464. The problem is that of all the computer shops I've been to, say "I don't do modulators" or do not answer. I've gone into a shop and said, "Do you sell modulators" paused, then said "for the Amstrad CPC 464" and the reply, "No!" Please help! Can you tell me where to get a modulator?

Mark Hopwood, Wakefield, West Yorks, WF2 8NF.

ACU: Attacking the problem from the other side, it is possible to convert your monitor to a TV set, but I suspect this only applies to colour monitors. For more information you could contact Datel Electronics (0782 744707) and inquire about its TV Tuner System or our very own Direct Lines.

Driven mad

I got an Amstrad CPC 464 last Christmas and I am getting bored with tapes. Could you please tell me where I can get the cheapest Amstrad disc drive? The cheapest I have seen in this mag costs £159.

Gregory Spalding, Gairlock, Ross-Shire, Scotland.

ACU: Two places sell drives at a much more affordable price. Siren Software (061 228 1831) sells disc drives from around £125.00 and Datel Electronics (0782 744707) sells them from around £120.00.

Basic dump?

I get your fab magazine every month (crawl, crawl!) and I was wondering if you, or your readers, could help me with a problem. I know a fair amount of Basic, but no machine code. I've written a graph program in Basic on my 6128, which lets you input fifty numbers, and then proceeds to produce a very colourful line graph. But once there I can't dump the screen onto my Star LC-10 printer. I've tried phoning Star but all I got as a reply was a 'sorry, I don't know about Amstrad 6128s.' So, if you or anyone out there knows of a short basic screen dump, please get in touch.

P.S. Bring back our adventure column!!!!

Jason Robson, Lonchors Farm, Gt. Saling, Braintree, Essex, CM7 5DS.

ACU: I do believe that this very subject has been covered several times in *Applications Advice*. Dig out a few back issues and your problems should vanish.

Tutor tango

Doubtless many other readers will have rushed to offer a correction for Line 60 of Mathematics Tutor on page 21 e.g. If c=then d=a*b:PRINT a;"*";b;"=3C:GOTO 70.

However, I'm still bugged with Line 70 (at least) of the PAC-ED IN TEN program on page 20 of the same edition. Any suggestions, or are there any missing instructions for c, as I can't get it to tun on a CPC6128, even after much attempted de-bugging?

Incidentally with the use of a small 1" in Line 30 can be easily confused with the figure 1 (take this type face as an example). If, in fact, "1" is intended could I suggest the use of another letter in future programs to avoid this problem?

Keep the Ten Liners coming, preferably de-bugged in advance!

Ken Rawsthorne, Hope Cottage, High Street, Fovant, Wiltshire, SP3 5JL.

Sprite is right

Ever since my brother bought a CPC 6128 about three years ago, we have been intrigued to know how the programmers got the graphic figures on the screen and if I could do it in Basic. We came across a programme called *Shape and Sound* in which you could design your own sprites. It also had a demo game which could be listed presumably to allow you to figure out how to do this. For eighteen months now my brother and I have been reading books, looking at listings and watching computing videos to try and find out how to do it, to no avail. So now we turn to you to help us.

Please if you can't print this in your magazine please write to us at the address below to let us know. If you don't I think we will go crazy!

We have learnt a bare minimum about some of the commands:
:SPROFF
:SPRONN
:SPRITESIZE
:SPRITE
We have no idea how these work and only just know what they do.

Steve/Jim Tupper, Eastbourne, East Sussex, BN20 8PN.

ACU: You might find it easier to purchase a dedicated program to handle most of the routine work involved. One such program is *Sprites Alive* from Glenco Software, 15 Alford Lane, Stockton on Tees, Cleveland, TS19 0QP. See January issue for full review.

Headphones?

I have wanted to buy stereo headphones for my CPC 464 for sometime so I was very disappointed when at the computer shopper show, I kept being told that there was no such thing. Yet I'm sure that I've read somewhere (your mag?) that it does exist. Can you help please?

Thank you very much.

Mr G. Baker, Lumbertubs, Northampton, NN3 4HB.

ACU: Two products from Datel Electonics touch on the subject, but neither fully solve it. The *Music Machine* allows the use of headphones, *Speech Synthesiser* and *Stereo Sound Booster* provide the stereo. Maybe a quick phone call to Datel would solve your problems (0782 744707).

Wacky mag

In answer to the letters from Arthur Pewty and Neil Markwell which you published in the January issue, you might like to point out that the magazine Wacci carries columns for both beginners and advanced CPC users each month.

I agree with you that you cannot have *all* the ACU articles written specifically for beginners – it would slow down the pace too much.

A Tilling, Altrincham, WA14 4EL.

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464 owners must already have at least one Amstrad drive.

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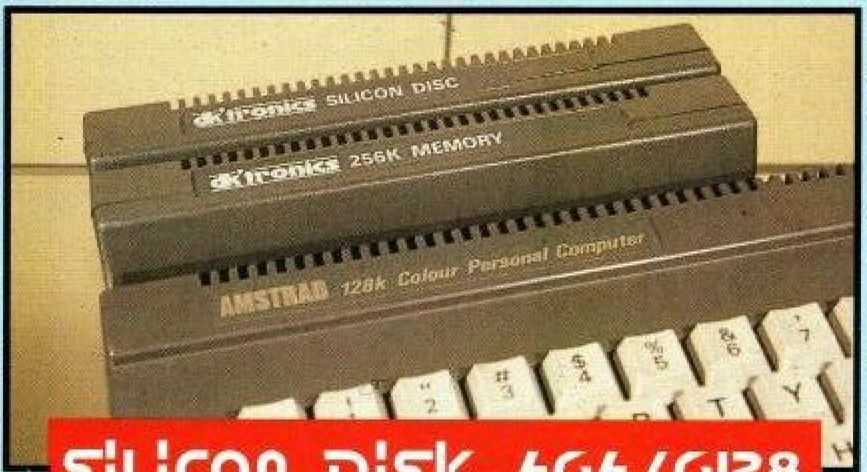


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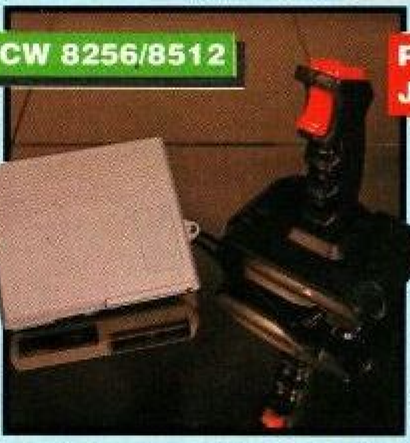


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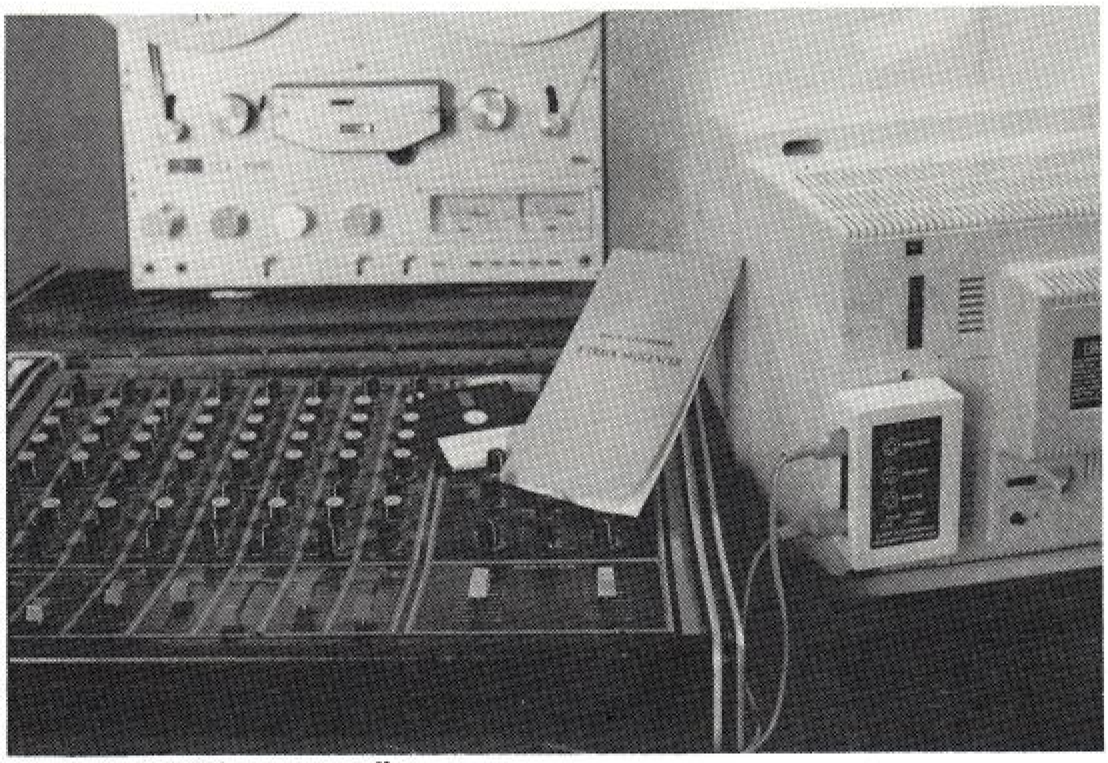
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Part of the game's animation has been provided by Incentive Software and with a whole host of technical wizardry behind it, the programme is the most advanced of its type. Well worth a look in, I'd say.

Free upgrading

Since the launch of its Multitrack Step Time MIDI Sequencer nine months ago, Foundation Software has received several requests and suggestions from users for improvements and extra facilities. Inspired by this, development of the sequencer has continued, resulting in a far more comprehensive version (v.4.15).

For a limited period, Foundation Software is pleased to announce free upgrades to all users. If you wish to take advantage of this offer, please return your master disc, together with a stamped addressed envelope, to: Foundation Software, 1, Brookhouse Road, Cove, Farnborough, Hants. GU14 0DP. Tel. (0252) 543945.

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Amstrad CPC

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Readers can leave letters for inclusion in the magazines. We are always looking for suggestions on how we can improve.

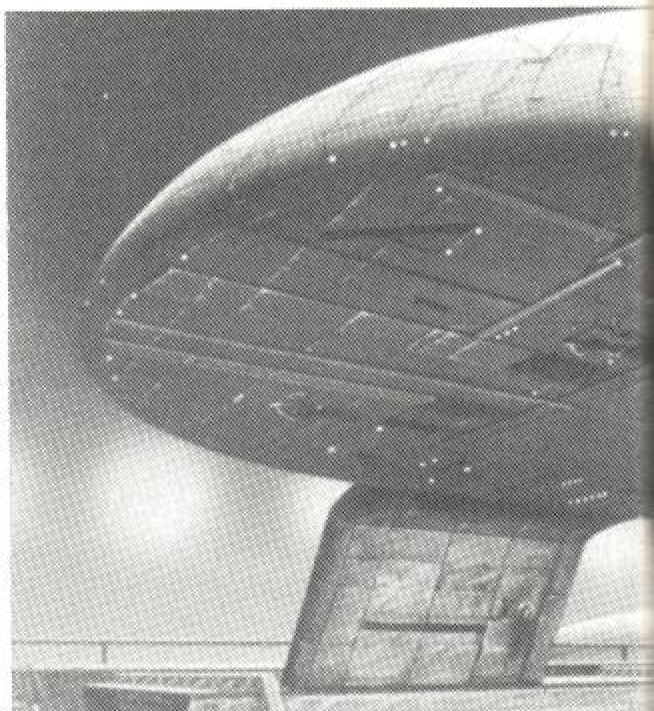
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Space age adventure

Sci Fi and Adventure buffs should be glued to their seats with the production of the world's biggest computer game on British Satellite Broad-



Space age adventure from Broadsword TV.

Mail order move

Caspell Computer has moved to a new sales centre at Sterte Industrial Estate in Poole. The established mail order company has been supplying computer consumables and software, not to mention its own invention, Ribbon Refresh, for nearly three years, and to celebrate the opening, Caspell is offering a brand new two hour local express delivery service. There is also a new 24 hour nationwide delivery service for customers further afield. For more information, call Caspell on (0202) 666155.

Joining forces

Software houses Domark and Incentive are pooling their resources for the release of Incentive's new blockbuster – *Castle Master*.

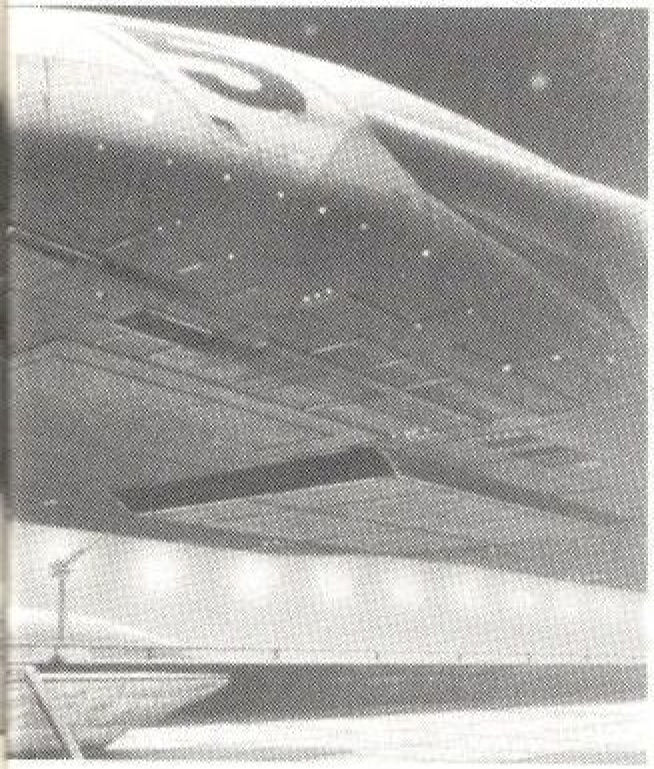
Set in 16th Century England, the game is an innovative 3D adventure which has you flushing out evil spirits from the castle in your quest to rescue a captive princess from one of the four towers.

Domark's Mark Strachan said of the merger: "It's completely brilliant news. Just wait and see the results!"

Castle Master looks set to hook adventure lovers and should be winging its way to the stores very shortly.



Mark Strachan, Andy Tait, Ian Andrew and Dominic Wheatley at the signing of the Castle Master deal.

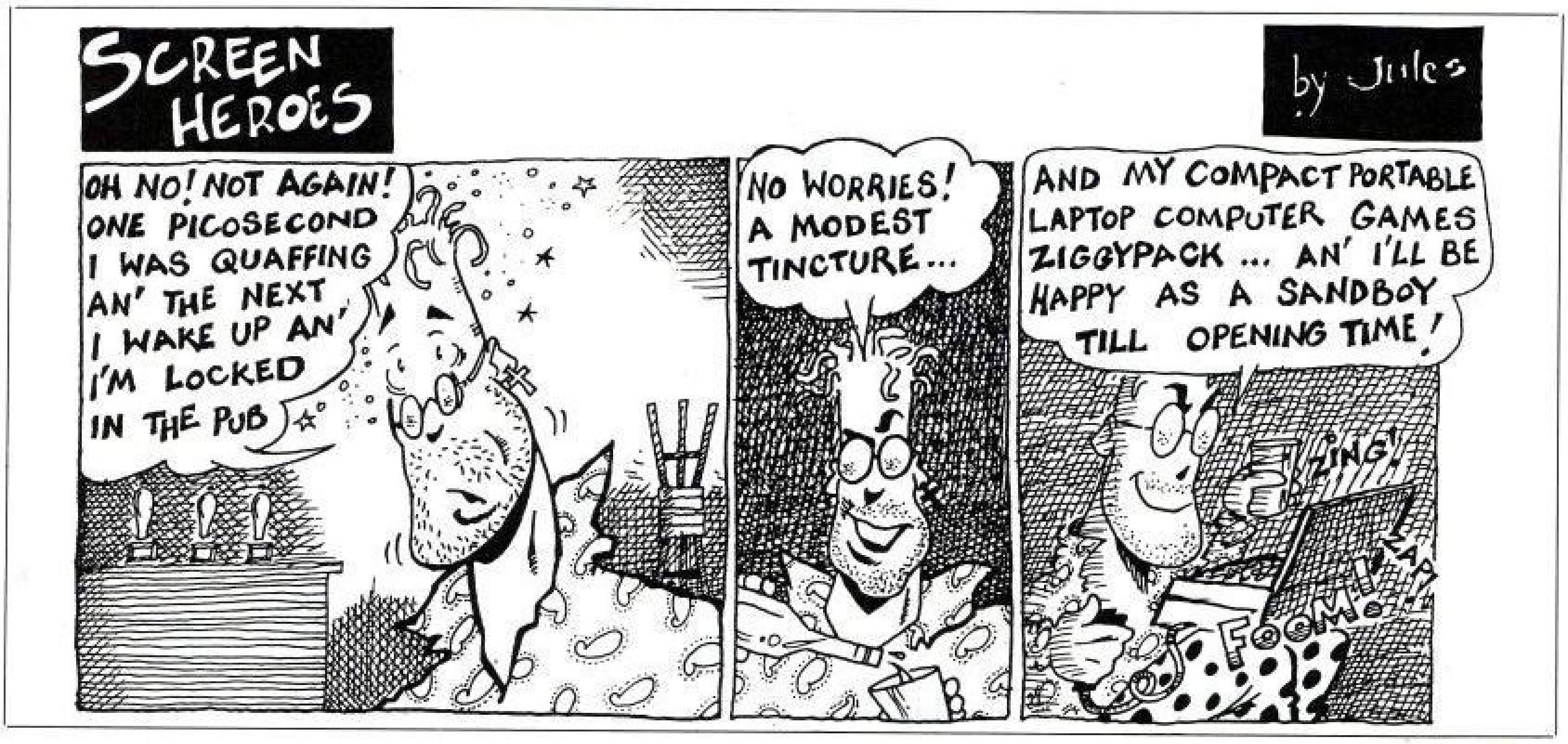


Blockades revisited

Let this be a warning to us all! The ACU team forgot to take down their Christmas decorations before Twelfth Night and, as many of our readers noticed, the goblins took their foul revenge out on our printer as it worked away quietly on the February edition Blockades listing. Unfortunately, we were unable to correct it before we went to print but we hope you will forgive us our sins (grovel, grovel) after we list some of the misprints, kindly sent in by Chris Athanassiou of London.

```
290  (v+1)
     IF v<23
300  24,13        PRINT"*" RETURN
310  DRAWR        SOUND 1,120,20,1,1
350  RETURN
360  PLOT
370  RETURN
390  THEN        x>5        ELSE
400  IF          (t=1       y=n:
430  SOUND 1,400,10
     SOUND 1,a,1            RETURN
450  THEN
480  GOSUB 560
     SOUND 1,150,10
490  yt=25
500  SOUND 1,a,1
     PRINT STRING$
     PRINT"**
510  PRINT STRING$
530  RETURN
```

That should help with a few problems and we will certainly be a bit sharper with our Christmas goodies next year.





There are two super first prizes to be won in this month's sensational Chase HQ competition. For one lucky reader over 14 years old there is the chance to burn rubber on the famous Brands Hatch go-karting course. One of our younger readers, will walk off with a fabulous remote controlled Porsche. Both winners will also receive a copy of the fast action Chase HQ game. On top of all this, 10 runners-up will also get game copies and colourful posters. All you have to be in with a chance of winning one of these great prizes is send us your best colourful drawing of Nancy and the Chase HQ centre. Please remember to mark your name, address and age clearly on your entry.

The editor's decision is final.
Send your entries to:
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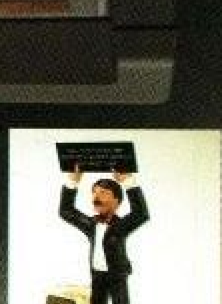
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Gold Award – Best Peripherals – Micro Decision 1989



General Hardware Award Mac User 1989

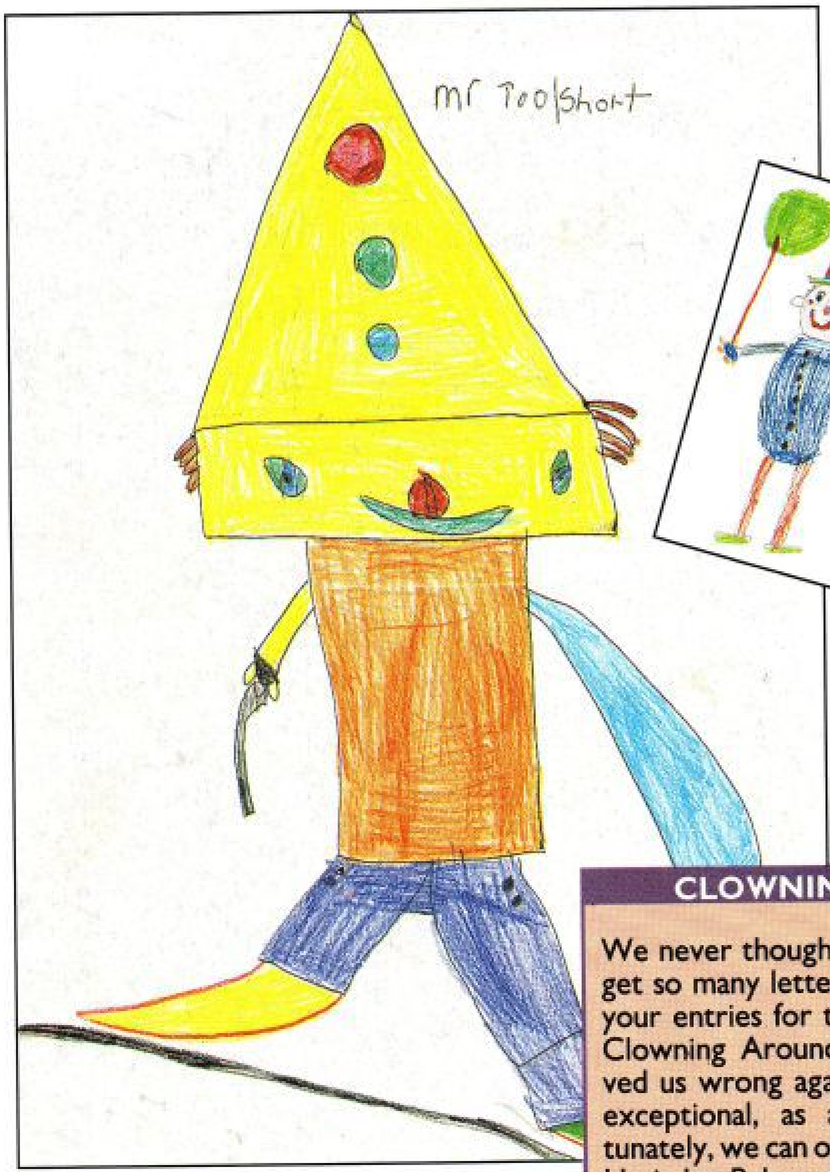


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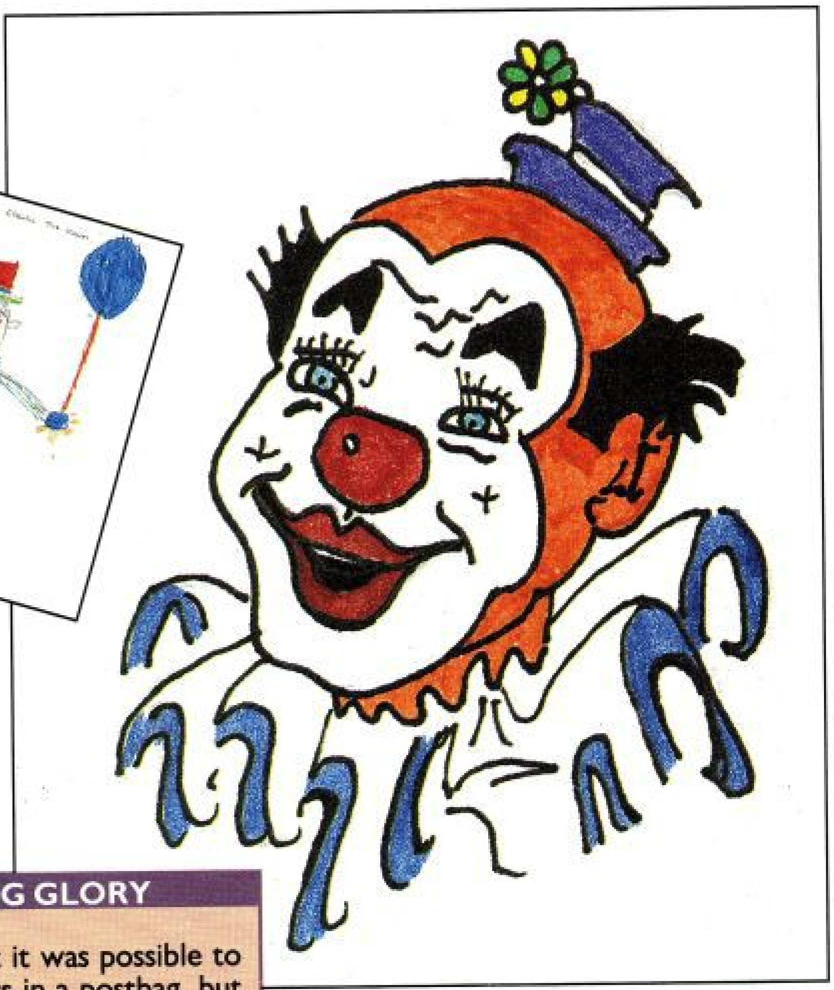
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COMPETITION WINNERS

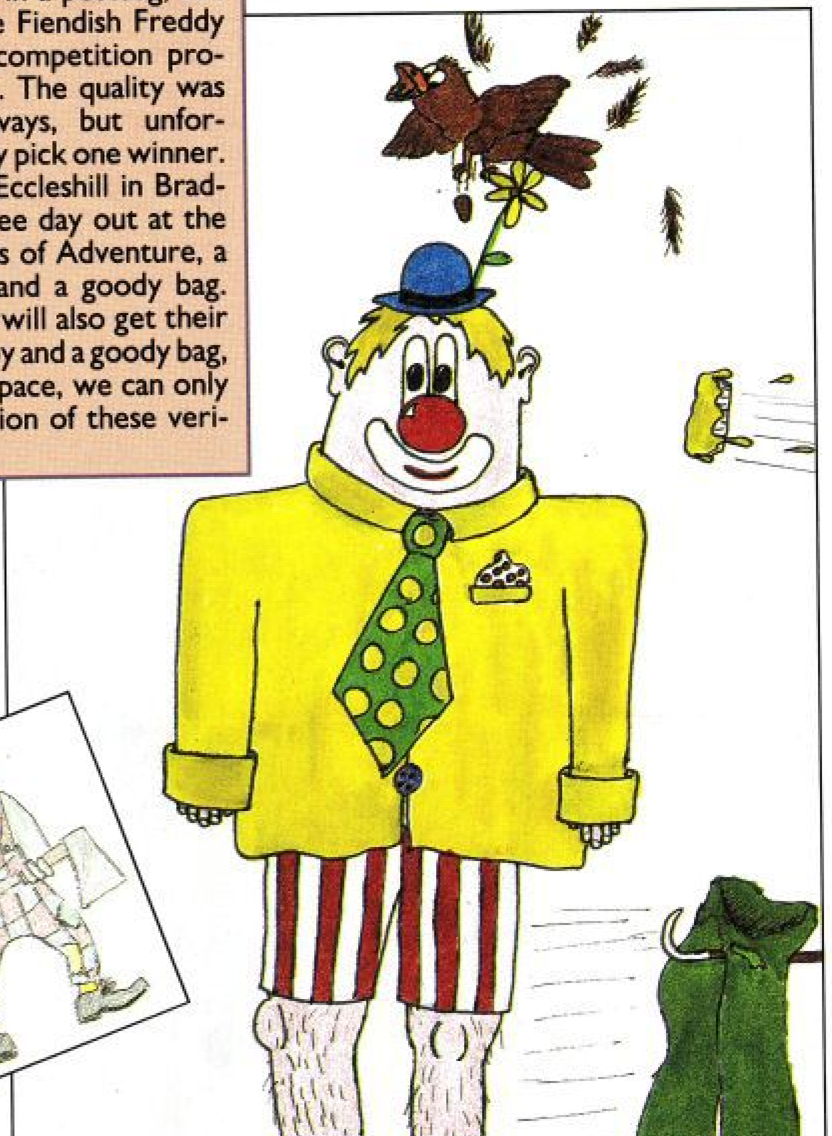




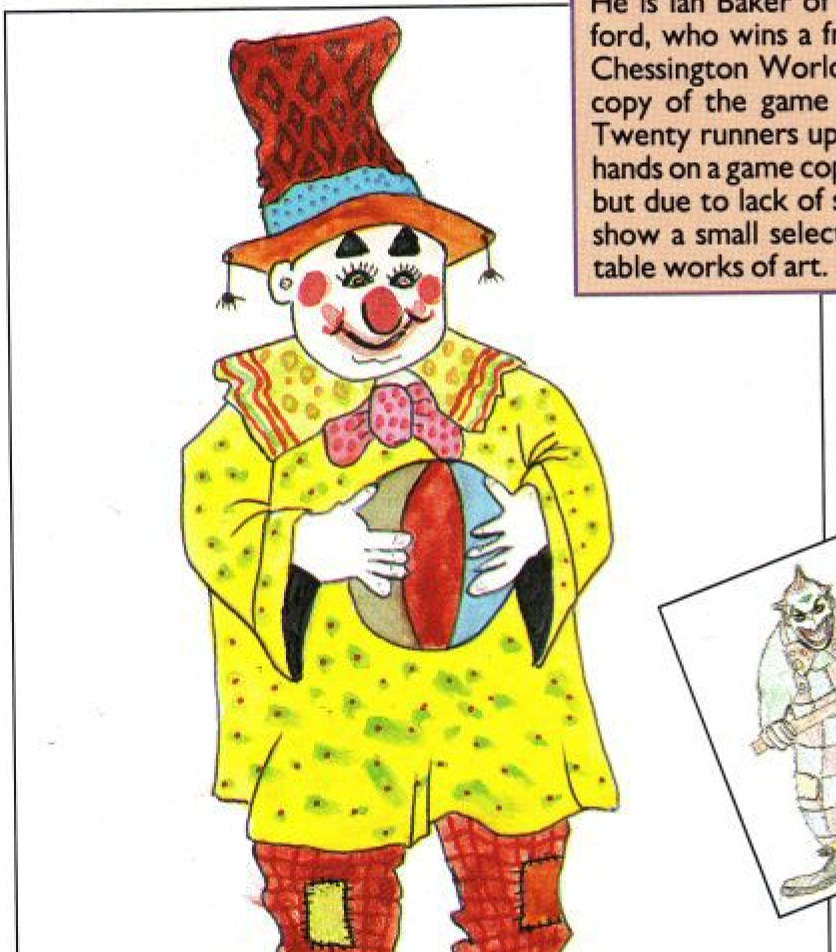


CLOWNING GLORY

We never thought it was possible to get so many letters in a postbag, but your entries for the Fiendish Freddy Clowning Around competition proved us wrong again. The quality was exceptional, as always, but unfortunately, we can only pick one winner. He is Ian Baker of Eccleshill in Bradford, who wins a free day out at the Chessington Worlds of Adventure, a copy of the game and a goody bag. Twenty runners up will also get their hands on a game copy and a goody bag, but due to lack of space, we can only show a small selection of these veritable works of art.

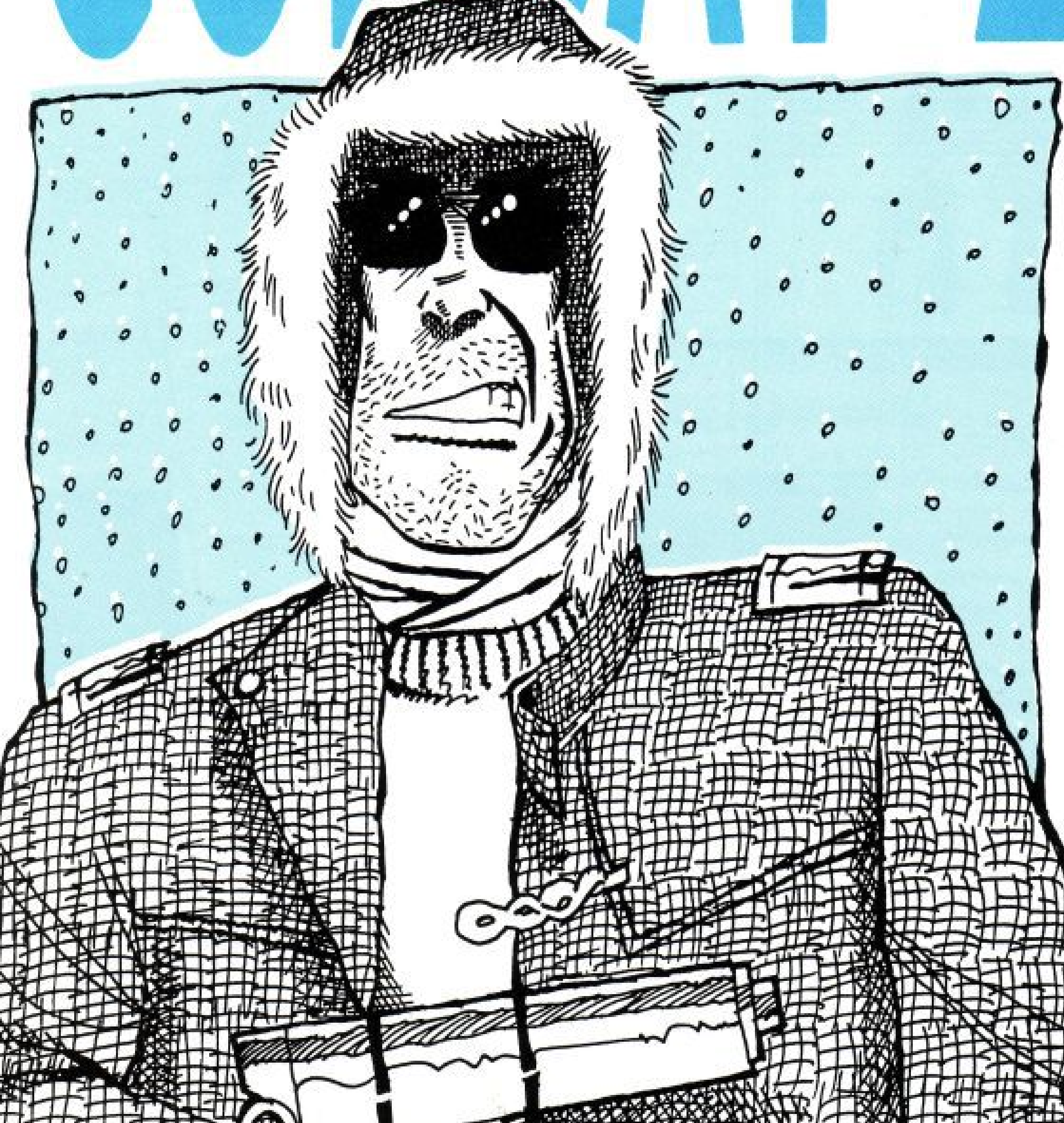






Starting bottom right and running clockwise, the winner Ian Baker, 13, James White, 12, B. Wilkinson, 60, Paul Denton, 7, Matthew Lemon, 7, and Gary Evans, 12.

COMBAT ZONE



It's winter in neon land, and John Cook is dressed to kill. Go ahead, make his day.

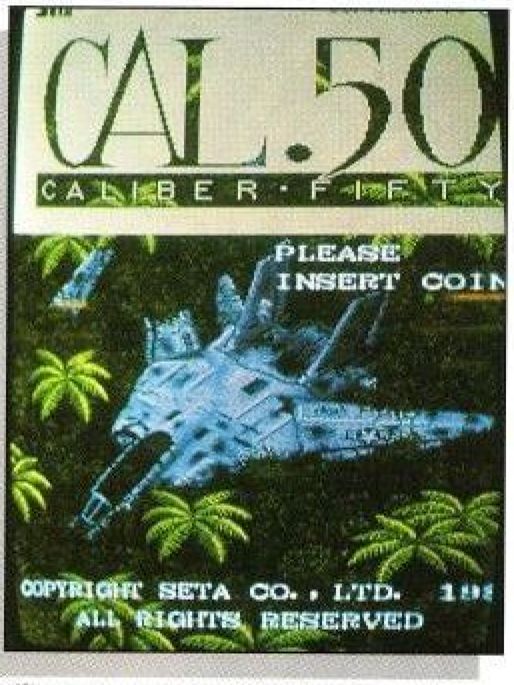
With the New Year well and truly over now and the memory of all those horrific hangovers (not to mention the boxed hankerchief and tie gift sets) is starting to fade, 'tis a time when a young man's fancy turns to . . . ummmm? Well . . . nipping down to the local arcade and checking up on the new batch of aliens, I guess. At least that's what it's been like over the past five or six years. But do you know what? This year I'm hoping that the alien count in the arcades will be slightly less than ever before, because I don't know about you, but I'm getting bored with blasting.

Bored with blasting? Good grief! What heresy! Well, I never thought I'd ever say it – and who knows, perhaps it's one of those difficult little phases in life that we all go through. But I was just boogieing on down to *R-Type II* the other day, when an extraordinarily humungous depression started to set in.

I attempted to analyse the emotion. Was I going through any particular personal crisis? Nope. Was there a General Election imminent? Probably not. Would Nancy Reagan ever appear on Wogan again? Unlikely. Had I recently been invited to appear on the Topex advert? Not that I could remember – although there was always the possibility of traumatic amnesia given the latter event.

And then it hit me. Deja vu. Three years ago, there I was, standing in front of a monitor, playing practically the same game *(R-Type I)*. And yet nothing much in the coin-op industry had changed. OK, so the hardware specs have grown a bit meatier, but the creative side seems to have degenerated in direct inverse proportion.

Take R-Type II, for instance, IREM aren't a bad company. But give them a pretty sexy board, bags of memory, heaps of processing power, all the resources of a medium sized coin-op producer, and what do they come up with? Another horizontal scrolling shoot-em-up. Worse still Sega – the biggest there is – is hitting the public with a new mow-em-down, *Line of*

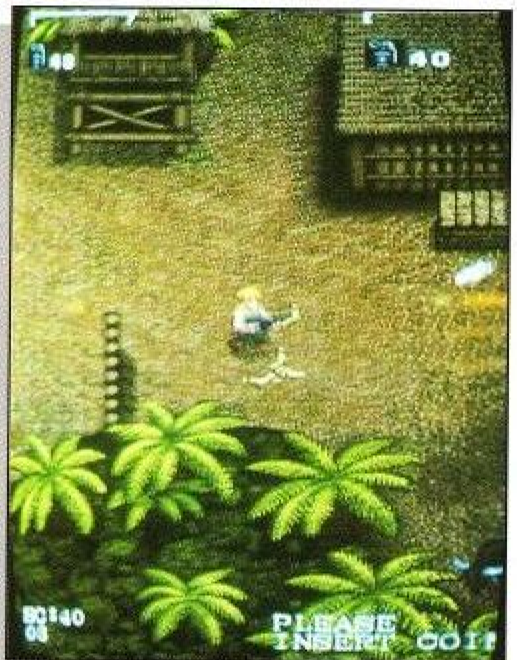


Calibre 50 – more POW rescuing.

Fire. Can anyone wonder that it took a genuinely new game like *Tetris* to outsell everything else last year. And why the punters are turning away from the arcades in their droves in Japan and the USA? So why don't we get all the managing directors of all the coin-op companies together in a single room, get them to raise their right hands and say 'We promise to try and be more imaginative in 1990'. Because it would be very expensive to fly them in first class and pay for their hotel bills, probably. But I hope at least some of them are listening.

Down to the business in hand then – with the first new coin-op this month, which probably takes the *Commando/ Ikari Warriors* style of game to it's zenith. It's called *Calibre 50.*

Let's forget about the scenario shall we (rescuing American POW's in Vietnam, yawn) – but concentrate on the fact that it's a very well implemented, playable game of it's ilk. One or two



Calibre 50 – unfriendly locals.

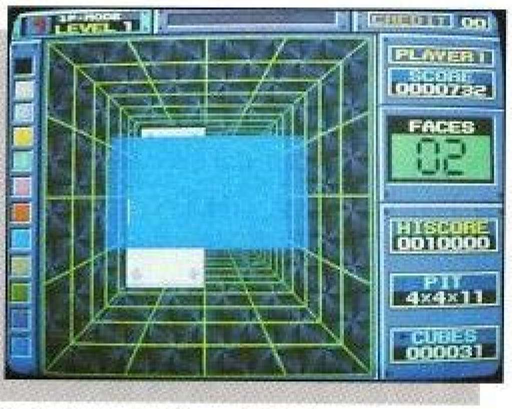
player, the screen scrolls 8-ways to follow the movements of your sprite, as he makes his way through the twisting jungle paths of South-East Birmingham, machine gun in hand.

Of course the locals aren't exactly hanging out the bunting, but display their typical parochial hospitality by spraying you with traditional automatic fire.

Avoid these objects, but by all means return the compliments, keeping a watchful eye on the ammunition situation. Stocks are replenished by running over the spinning bullets that are left behind when an enemy gets hit.

There are other goodies – like rocket launchers, grenades and flame throwers. You'll need these because some of the opposition a little later in the game start hiding in tanks, which need the heavier stuff to be destroyed.

Calibre 50, then, is a great example



Block Out – Tetris revisited.

of it's type – but if you are very tired of this particular shooty-shooty format, it's unlikely to fire your enthusiasm nodes. Give it a try anyway.

Now you all know that I'm nuts about Tetris. Why? Ummm, maybe because arguably I was the person that persuaded Mirrorsoft to publish it when virtually every other software house in the universe had turned it down. Whatever, it's success in the arcades was something that nobody could have ever really anticipated (I know I didn't!) and has meant that almost every company is trying to come up with an arcade/puzzle game to cash in on what they see as a craze.

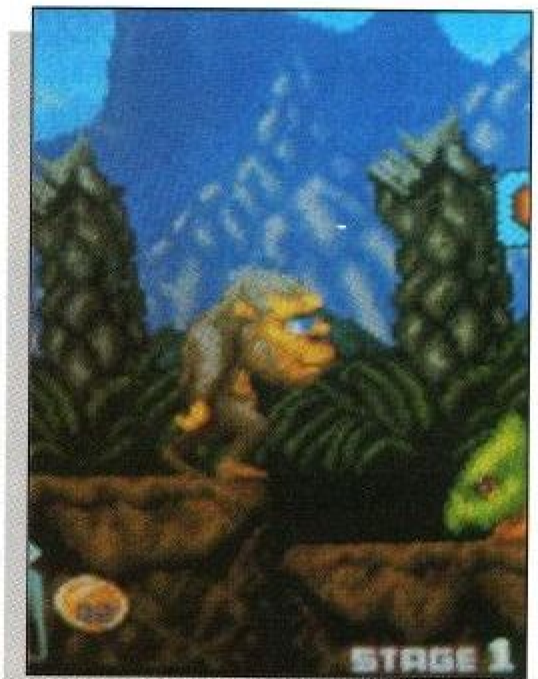
American Technos have done better than most, with a true 3-D variant of Tetris called *Block Out.* The view here is looking down at the top of an open box, with outline shapes falling one by one towards the bottom.

You have three buttons to rotate the shape in the X, Y or Z axis and the object is to make complete cross sections across the box which, like making a line in Tetris, makes it disappear and anything else on top of it fall down by one row. If the blocks reach the top of the box, then you're in trouble – it's the big Game Over.

In principle, it's a good variant, but when you start playing you get to understand why it fails to live up to it's predecessor. The fact is that manipulating things in 2-D is about 100 times easier than doing it in 3-D. Processing 3-D symmetry operations in a 3-D object makes your brain hurt, as anyone who has every tried to dabble in crystalography will tell you.

Besides that, once you've made a mistake, it is almost impossible to see how to get out of it – as when a block has settled, it fills in, so you can't see underneath.

Nice try however, and the real hardcore Tetris fans will almost certainly



Toki – more jumpy-jumpy.

still get something from playing Block Out. But most of us mortals will have to admit defeat after the first few 10ps. Lastly this month, *Toki.* Toki's woman has been snatched away by a wizard-type thing and upon attempting rescue, our hunk is turned into a chimp. So runs the story of Toki.

OK, so at the end of the day, this is just another jumpy-jumpy thing, but what saves Toki from oblivion is the design of the graphics and the surrealism of the action. A chimp wearing an American Football helmet? Opening it's mouth and firing out balls of flaming spittle?

Playing it had me in stitches – so I'm nominating it as Game of the Month. Rush down to the nearest arcade and play it immediately. OK? Until next month then, stop it at once and get on with your homework.

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Masters of the Universe

Code Masters comes under close scrutiny from Chris Knight. He discovers the joy of their new CD Gamespack.

Now, if I was offered the choice between relaxing over a cool pint of bitter with a well-matured cheddar ploughman's – the rolling Warwickshire landscape in the background – and jostling through the crowd to grab a chicken bap from the probably lead-polluted counter of some London roadside sandwich bar, I do not think it would be a particularly close contest... if there were nothing else that the Code Masters folk were good at, they certainly knew how to pick a good location.

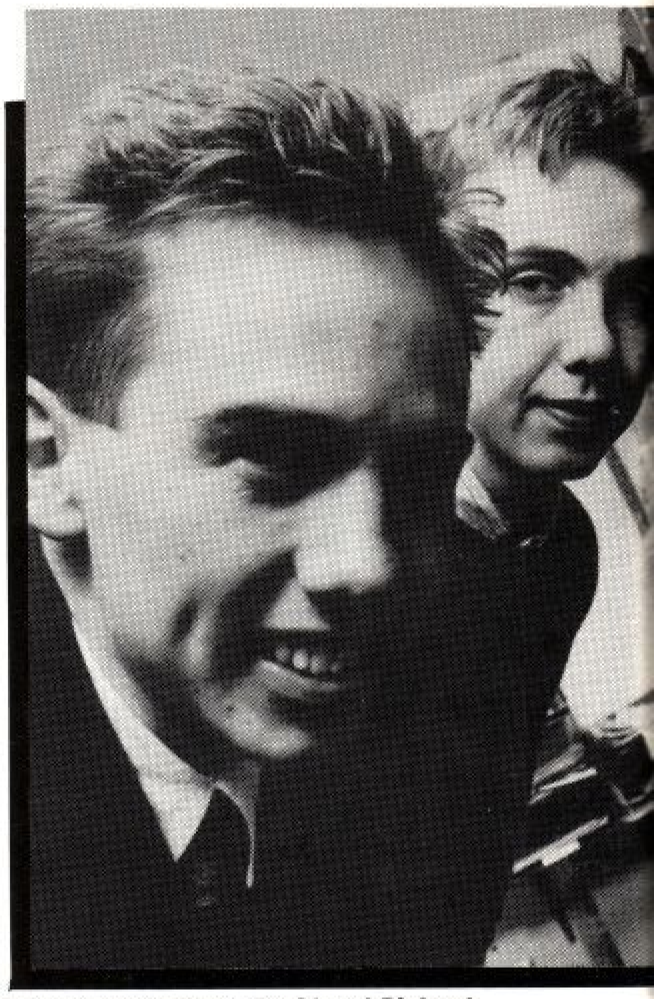
The Code Masters attack on the software market is launched from something that looks more like an ancestral home than a hi-tech power house, and that is not a bad analogy when you consider the close-knit family influence on the business.

Head of the Darling clan is father Jim, with daughter Abigail taking care of accounts and Darlings junior David and Richard looking after program development and company negotiations amongst other things. This central core is ringed by a circle of close personal friends which gives the whole set-up a friendly and informal air. It sounds like the ideal background for success, and indeed if the Code Masters track record is anything to go by, it certainly helps to make a winning formula.

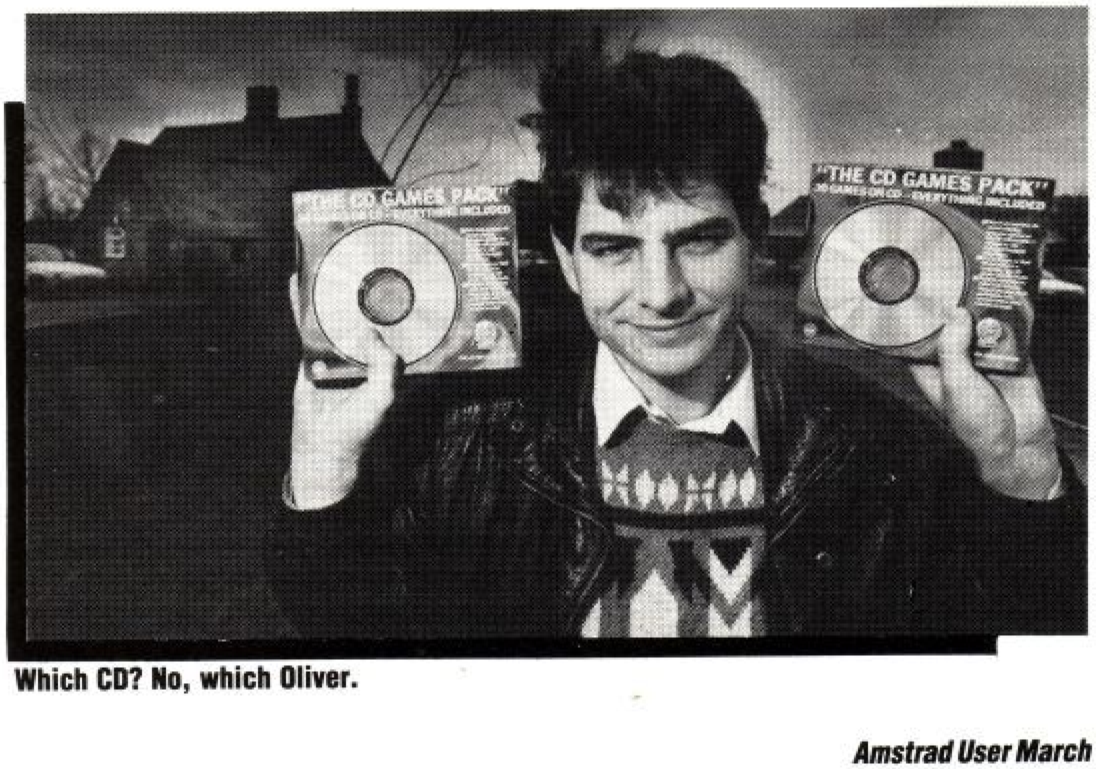
Code Masters erupted onto the market back in late 1986 with the release of twelve budget-priced games selling at £1.99, many of which, such as *BMX Simulator* and *Pro-Snooker Simulator* went on to become major successes. But the brothers Darling were no dark horses prior to the launch, having written as many as forty-five titles during their time with Mastertronic. PR Mike Clark puts it in



PR Mike Clarke gets it taped.

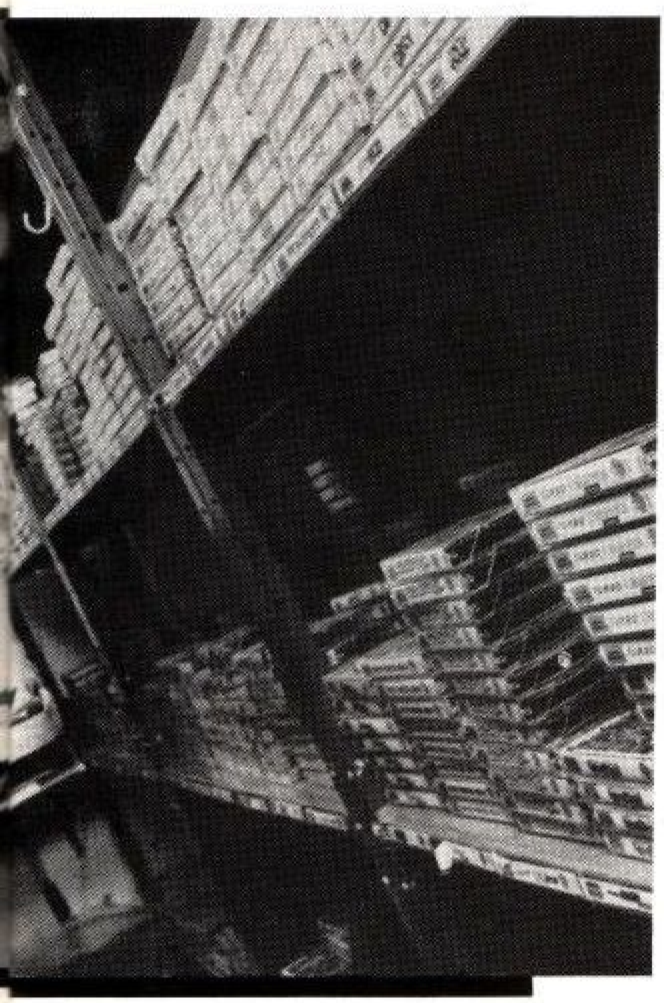


The smart Darlings, David and Richard.



Which CD? No, which Oliver.





a nutshell when he says of the two: "They've always been pretty smart boys."

Since those humble beginnings Code Masters has used the budget game to build a strong position in the marketplace – as its bread and butter – but mention of that dreaded word 'budget' does not go down well with the locals here.

"Using the term budget is wrong," claims Richard. "We don't tend to splash out so much money, so we don't get so much airplay. It's really just two ends of the scale. We have done some two-page advertisements for our £2.99 games, but that was a first.

"Budget software accounts for roughly sixty per cent of the market, so it seems silly to demote it to back-page mono advertising when that's what the kids are going to buy. I know I'd much rather buy software for £2.99."

And any fears of price increases to pay for extra hype are squashed by Mike Clark. "We have had a couple of stabs at higher priced games," he remarks. "But really it's just money for old rope. We're not geared up to marketing and hype like some other companies; that's why the Oceans and US Golds of this world do so well. We're in the business of selling good games to people, not selling dubious games well."

But, hype aside, Code Masters sales are doing very nicely indeed, thank you. Distribution in Europe is wide and secure, as it is in the more outlying parts, such as Australia and Scandinavia, although the good old United States still beckons.

"The big hole in our distribution network is America," confesses Richard. "We're working on it at the moment, but the American market is notoriously difficult to get into because they want to spend money. The more expensive the product, the better, so it's difficult to sell £2.99 games over there. The CD Pack may change that though."

Aha! There it is at last, the CD Games Pack. Well, no current mention of Code Masters would be complete without it.

Thirty great games for a remarkable £19.95 is good news in itself, but what is far more important is the technological breakthrough that brings CD loading and storage facilities to the 8-bit machine.

The games are saved on the disc as an audio signal, which differentiates it from true CD-ROM, but still allows extremely fast loading and track selection. The special cable included with the games pack connects between the ear socket of the standard CD player and the joystick port on the CPC – a cost-cutting move which allows the lead to be used for all the major 8-bit machines.

The games pack also comes complete with a loading cassette which, in a matter of thirty seconds or so, will coax your CPC to accept the material stored on the CD.

But all this for £19.95? It sounds like complete madness; according to Richard, however, there is method behind it.

"It's true that we will have to sell a lot of games to break even, but if everything goes as predicted it will be magnificent. The cable is compatible with all types of micro and the idea is to flood the market with them so that more and more people will be able to buy and use the CD packs."

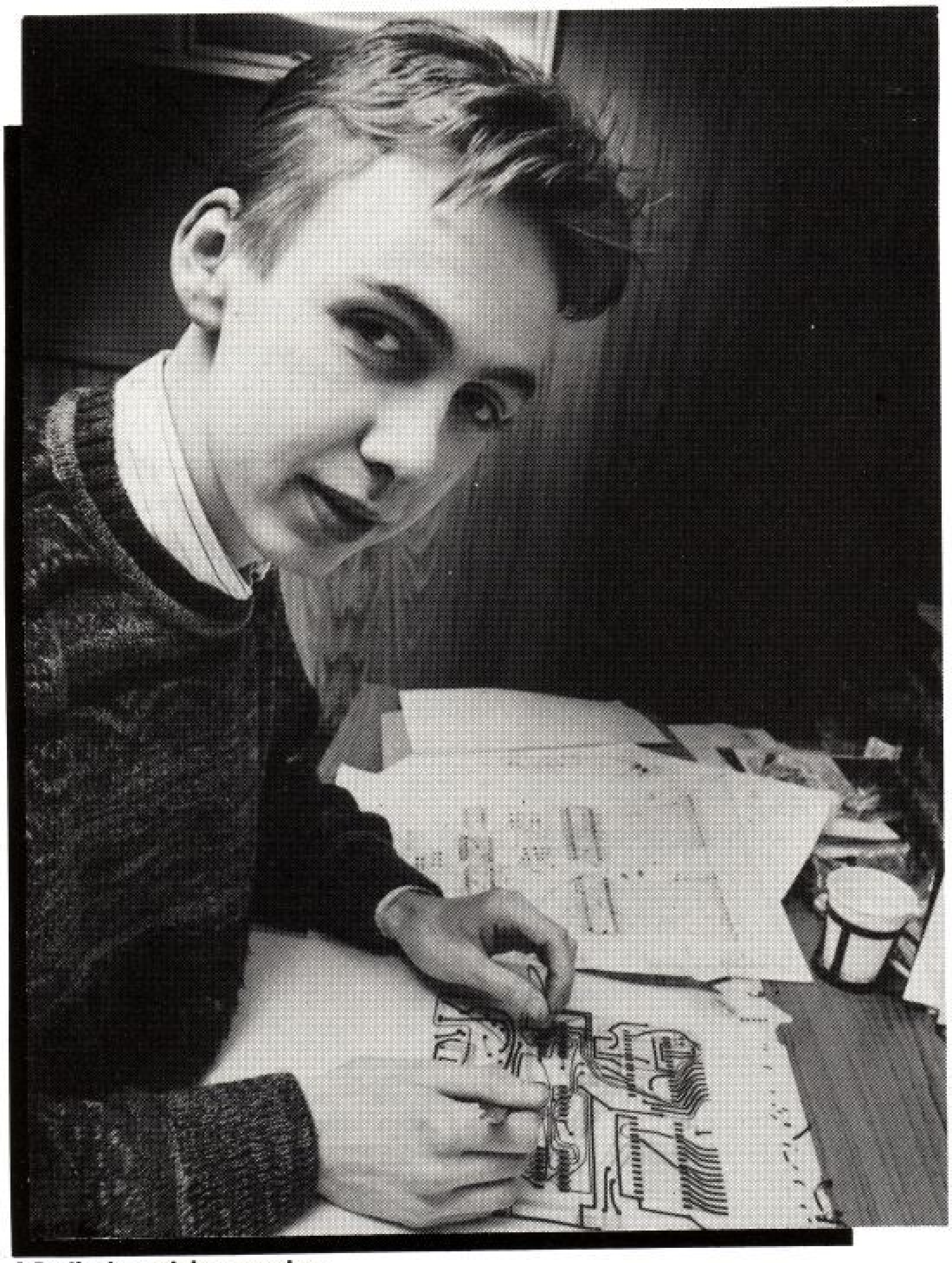
An even more staggering fact is that each game has been recorded twice on the CD disc for failsafe loading, which gives the amazing total of over sixty games.

"We're talking somewhere in the region of eight megabytes of storage capacity on one disc," claims Mike Clark. "It's quite incredible when you think of the amount of room you've got on there for digitising sequences for movies and making soundtracks. The scope is amazing."

So what happens next? High amongst the list of probables is the release of CD singles running three or four games. Another idea which would revolutionise retailing would be the



Sian Savage and Phillip Oliver discuss design tactics.



A Darling's work is never done.

amalgamation of three different micro versions on to one disc. The system will also provide the perfect solution for multi-load game users.

It certainly looks like mega-bucks time for the Darling family, but is Code Masters open to offers on the revolutionary new system? "Why not?" says Mike. "We have got the sole licence on this product, but if people come knocking on the door, we'd be interested in talking to them."

But enough of the games pack, we're going to see quite enough of that in the near future. The publicity focusing on the CD breakthrough has also obscured another Code Masters novelty – the new Cartoon Time label.

Cartoon Time is aimed at the younger age group and was set up in the wake of *Dizzy* (ah yes, and very fond memories I have of it too), when a gap was identified in the market by those sharp-eyed programmers up in Leamington Spa.

"Cartoon Time is a separate label bringing friendly, cartoon-type games onto the market," claims Richard. "Code Masters is normally associated with fast action games, whereas the new label offers you games that you can watch as well as play on 8-bit cinema ware. With the expert backing of Code Masters it also gives us a nice side benefit: with one label it is difficult to take more than twenty per cent of the market, but with two, there is the possibility of gaining nearer thirty-five per cent.

Very smart boys indeed. With that kind of logic, they will certainly go a long way. And considering the other projects which they have up their sleeves, but are keeping firmly under wraps for now, that long way seems to be exactly where they intend to go.

To celebrate the launch of the Code Masters CD Games Pack, here is your chance to walk away with a super CD discman and the goody pack itself. Just answer the three simple questions below and the first correct entry pulled from our postbag takes the prize. Second prize is a shopping bag filled with the thirty game titles used in the pack on cassette and the next ten will get a poster.

1. When was Code Masters founded?
2. If there are 30 games on the CD for £19.95, how much does each game cost?
3. Who introduces TV's *Cartoon Time*?

The editor's decision is final. Please send your entries to: Discman, ACU, Avralite Publications, Greencoat House, Francis Street, London SW1P 1DG.

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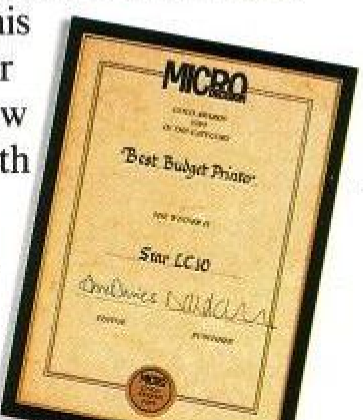




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CAMPANOLOGY

BY H. SILCOCK

Ring out the changes with this progrette designed to deal with the effect of the Sound Queue to get a print-out in step with the sound of the music. This can also be used to print out note or chord designations (instead of bell numbers).

```
1 'File HWS28                                    [71]
2 '10-liner program by H.W.Silcock           [72]
10 'CAMPANOLOGY with change-ringing       print-out in step with sound of bells   [F1]
20 CLS:LOCATE 11,1:PRINT "GRANDSIRE TRIPLES":PRINT:DIM C(8),D(168):FOR x=1 TO 8:READ C(x):NEXT
                          [E2]
30 FOR 1=1 TO 21:READ row$:FOR h=1 TO 8:a$=MID$(row$,h,1):p=VAL(a$):n=8*(1-1)+h:D(n)=p:NEXT h,1
                          [3E]
40 FOR m=1 TO 22:FOR i=1 TO 8:j=8*(m-1)+i:k=j-4                                  [FA]
50 IF j>172 THEN 50 ELSE IF j>168 THEN  SOUND 17,0,40,0:SOUND 10,0,40,0:GOTO 80  [06]
60 o=D(j):q=C(o):r=CINT(q*5/3):SOUND 17,q,40,12:SOUND 10,r,40,8'(r aims to give bell-like effect
 by adding major sixth  below)                                   [5E]
70 IF i=5 THEN PRINT USING " ££   ";m;   [75]
80 IF k>0 THEN PRINT D(k);:IF i=4 THEN  PRINT                                    [8F]
90 NEXT i,m: DATA 118,126,142,158,178,189,210,237:'(diatonic scale)                    [E8]
100 DATA 12345678,21354768,23145678, 32416578,34261758,43627158,46372518,64735218,67453128,76541
328,75614238,57162438,51726348,15273648,12537468, 21573648,25137468,52314768,53241678,35426178,
34562718 [DD]
```

STOCKMARKET

BY M. PINDER

Be a stockmarket whizkid from the comfort of your own armchair. With this 10-liner simulation you can buy and sell shares by simply pressing 'b' and 's'. If you don't like the prices, update them using SPACE. But be careful not to overspend or you'll go bankrupt. You've got just five minutes per game to make your fortune, so start speculating now.

```
10 MODE 1:ch=INT(RND*500)+1500:sc=ch:tm=300:DIM a$(5):DIM p(5):DIM sh(5):EVERY 5
0,1 GOSUB 90:FOR x=1 TO 5:READ a$(x):NEXT x:RESTORE
100:FOR x=1 TO 5:READ p(x):NEXT x:DATA "1)Samstrad","2)Ararti","3)Focus mags","4
)Nat. Computers","5)Sid's floppy discs"
20 CLS:LOCATE 10,1:PRINT"S T O C K M A R K E T":LOCATE 1,5:PRINT"COMPANY":LOCATE
 25,5:PRINT"PRICE":LOCATE 33,5:PRINT"SHARES":FOR x=1
 TO 5:LOCATE 1,(5+(x*2)):PRINT a$(x):NEXT x
30 FOR x=1 TO 5:LOCATE 25,(5+(x*2)):PRINT p(x):LOCATE 33,(5+(x*2)):PRINT sh(x):N
EXT x:LOCATE 1,19:PRINT"Cash Left £";ch:PRINT:PRINT"
Time left";tm;"secs":LOCATE 1,22:INPUT c$:IF c$="b" THEN GOSUB 80:GOTO 20
40 IF c$="s" THEN GOSUB 70:GOTO 20
50 PRINT CHR$(7):z1=INT(RND*16)-8:z2=INT(RND*8)-4:p(1)=p(1)+z1:p(2)=p(2)+z2:p(3)
=p(3)+z1:p(4)=p(4)+z2:p(5)=p(5)+z1:FOR x=1 TO 5:IF p
(x)<1 THEN p(x)=25:sh(x)=0
60 NEXT x:GOTO 30
70 INPUT"Enter Company Number";cn:INPUT"Number Of Shares";ns:IF ns>(sh(cn)) THEN
 20 ELSE ch=ch+(p(cn)*ns):sh(cn)=sh(cn)-ns:RETURN
80 INPUT"Enter Company Number";cn:INPUT"Number Of Shares";ns:qq=p(cn)*ns: IF qq>
ch THEN GOTO 20 ELSE ch=ch-qq:sh(cn)=sh(cn)+ns:RETUR
N
90 tm=tm-1:IF tm<1 THEN CLS:PRINT"GAME OVER":PRINT:PRINT"You made a profit of £"
;(ch-sc):FOR r=1 TO 10000:NEXT r:RUN
100 RETURN:DATA 34,27,59,42,63
```

LIVE WIRE

BY DAVID HALL

```
10 DIM a(14):INK 0,0:BORDER 0:PAPER 0:MO
DE 0:FOR t=1 TO 13:a(t)=t*2:INK t,a(t):N
EXT:c=1:x=320:y=200 [23]
20 PLOT x,y,c [8E]
30 IF INKEY(74)=0 AND x>2 THEN x=x-4 ELS
E IF INKEY(75)=0 AND x<634 THEN x=x+4 [B0]
40 IF INKEY(72)=0 AND y<398 THEN y=y+2 E
LSE IF INKEY(73)=0 AND y>2 THEN y=y-2 [72]
50 IF INKEY(76)=0 THEN :c=c+1:IF c=14 TH
EN c=1 [24]
60 IF INKEY(47)<>0 THEN 20 [64]
70 WHILE INKEY(76)<>0:v=a(1):FOR t=1 TO
12:a(t)=a(t+1):INK t,a(t):NEXT:a(13)=v:I
NK 13,a(13):WEND:RUN [42]
```

You certainly get your money's worth with this little graphics demo. Draw what you will using the joystick; change colours with the fire button; and when you've done, press Space and watch. You won't believe your eyes. This one kept us amused for hours.

SNAKE

BY PETER SIMON

Wriggle your way out of this one. It's not short, but it is a 10-liner. Just follow the simple instructions and see how long you can last!

```
10 MODE 1:MEMORY &5FFF:k=&6000:FOR i=1 TO 9:READ a$:FOR j=1 TO LEN(a$):d=ASC(MID
$(a$,j,1)):POKE k,d:s=s+d:k=k+1:NEXT:NEXT:READ a$:FOR i=0 TO 47:d=VAL("&"+MID$(a
$,2*i+1,2)):POKE &7000+i,d:s=s+d:NEXT:IF s<>167058 THEN PRINT "Error!" ELSE CALL
 &7000

20 DATA mbTTV3OnP3i?FOk9IUTAjfUnfOine3jTgVFIS87VqnfUGk4xdDOx6n3jynziOwO4N4nAwjfH
fFlnVAjk2nCj24wOm8Ocyneiu8gUm4Oc2OUOWvgnHdjD?O8j?VnjYjDOi8kVCnjjZDO8dmVnEjj1Y69O
8OnT5U9?GnTUQ4wiY?@O8MnT5U@6GnTUg4w8EO48I9V8Z9V8UOk4V1AOUOEvcgnmdUnmdUnmdUnmdU8b
?V4fuVOO8O
vgy
30 DATA nFUmn4Uqn1i1zACKyzBwC3mrfzIE?8znE8uynIUU6sxm837unRiiwHnRKiDuBYVHVDA57V6v
nnFvUnCfU8i8V4?9VO38Ovg0z8@NVnwOUn6JU1OannUg4ynamUni2i8eaVOU1OvWg81hDOYg6OzZTOzf
R1zVPOztNOhc8O@9zO8GO@zVO8Oq9zO88O9uzRO2zR1GngUY83ndwUnJ6UCJ7V1B2F6b8z1c898OoVDr
OfR6nejanw
UC4
40 DATA OOez6ndnUnaGUnS?UCp7VFVR4zXk4Ua8qV6nejh16l@f1G6nAjN14Rc4zkM4w14NR4uz8sOV
nDvUnOPin1@i4f?V8iqV1O56jC2481D8449x8f?V4iuVOO8Ovg3kcUK1DOmnYiJ?9VRL8JH8TzEACOF9
48p9VuGngUM6uDMznKfikmdDOngYizhPOzVN1nSRiDMwzVO1nKPizPMOzNeOnR7iDxKzVOqnKiemr8Y?
VrhPOrVN1n
SRi
50 DATA DMyrVO1nKPirPMOrNeOnR7iD8qnKiS8?VG4?VmOo1WvgmV1Fr?8AVO1rPMOrNeOtnYgUsmk8
5KzTO5zOCM2zT8Oj?1263azTOEj?Og61rv8r8U4pmelttunRiZD5nRKiDOOnKriDOmnYidDznRKiD9On
YfisnSRiDNznKLiD5qnKiPfnKfiskemtniRiohGE8UOs3G1?124IOW64zO22Tfhm8b7VnhfUrhNOrZPO
?sPLfjNJ?e
?6?
60 DATA ?6?9E9T?o9VRf8t8b7VnhfUrhPO?yLfNfJ??e?6??6?9U9TsDR8T1zAC5O94F89Vum8sMVnD
vUn7fU81MVnDrU15ZD?nBKi4eym8NfVT4DxA5zCC51DADR?6hwR8McVTXhmnxKi8g6x4UOk8V1AOUOEv
cgmnjFU8fBVnhDUnR1iAOaVAfJVnhKi8dKVnhDUnR1iANaVAcOVnhKi8FOVnhDUnR1iAPaVAeSVnhKi8
cTVnhDUnR1
iAM
70 DATA bVAfWVnhKi8dXVnhDUnx1imbfzKUm6djkTjO96DoDTqLqTTTqqTODD6o913yiTTSi31UMwbZ
zzbOwM9NKjNPtaKEDDKSatN6jK9Y@KijNNi1K@BNKbtNtbKEBDN5KN9OD66O66DI9NK1NDOkQrd3drQE
OO3fCpp7C3OOOO1x@Lz1O7jnjOyDyyO3jEE3z11A1zEvtdzk99zidt3tO3OA393Z9O6X543c13183934
954m54OW61
6U5
80 DATA 41C644d163t131A3839832M3848444@162e632k382Y832k443c4269263i222G3834834m3
42W636d222C238k483W242k342c436N362882BV242g4368462e2422482c824U4621445w31Ok32Os3
20o320f721F?8?48?8A8I8VH8EA8G82F88F?8?o8?7621Or307123AD308A?QPjPR?88@8Q830yB30E8
?NCMQRS?30
r72
90 DATA 3nE83@O@8nMOPjPQNw8MPFPRQnPPQr307p24Iw830m@8QMRMQkR8NeMPNv307221Or307s32
IWNPN3MR8fONSHQ8NrPQ3DO7483JQD753b3OMk2O3DO7413FPrRP7r53350S2wO303744MHNNwR75Q43
O1P2Oz307I44ICONOwR75R4302P2Or307t45HfOMSXDOMZSPPk88Ar307s26ITMPQ6NC8k88Ab766sGO
N4OC8k88AY
OOO
100 DATA P301Hz1Oh2yON21Ot01Ox03zf30060D00000Q010000033000030r7320688088808880888
8088808730388fFEH2F88Q8HJ6FI80873238808880888088808880860320000,11006021008OE5CD
21704F0603CD2170CB39CB17CB39CB17772310F17CFE8738E61A13D630FEOAD8D605FE26D8D606C9
```

LOCOMOTION

BY ANDREW PRICE

Run the program and you'll find five separate columns with an object below each one. Meanwhile, these objects appear randomly across the top of the screen. All you have to do is hit SPACE as the object passes over its corresponding column. But be warned, it's not as easy as it sounds.

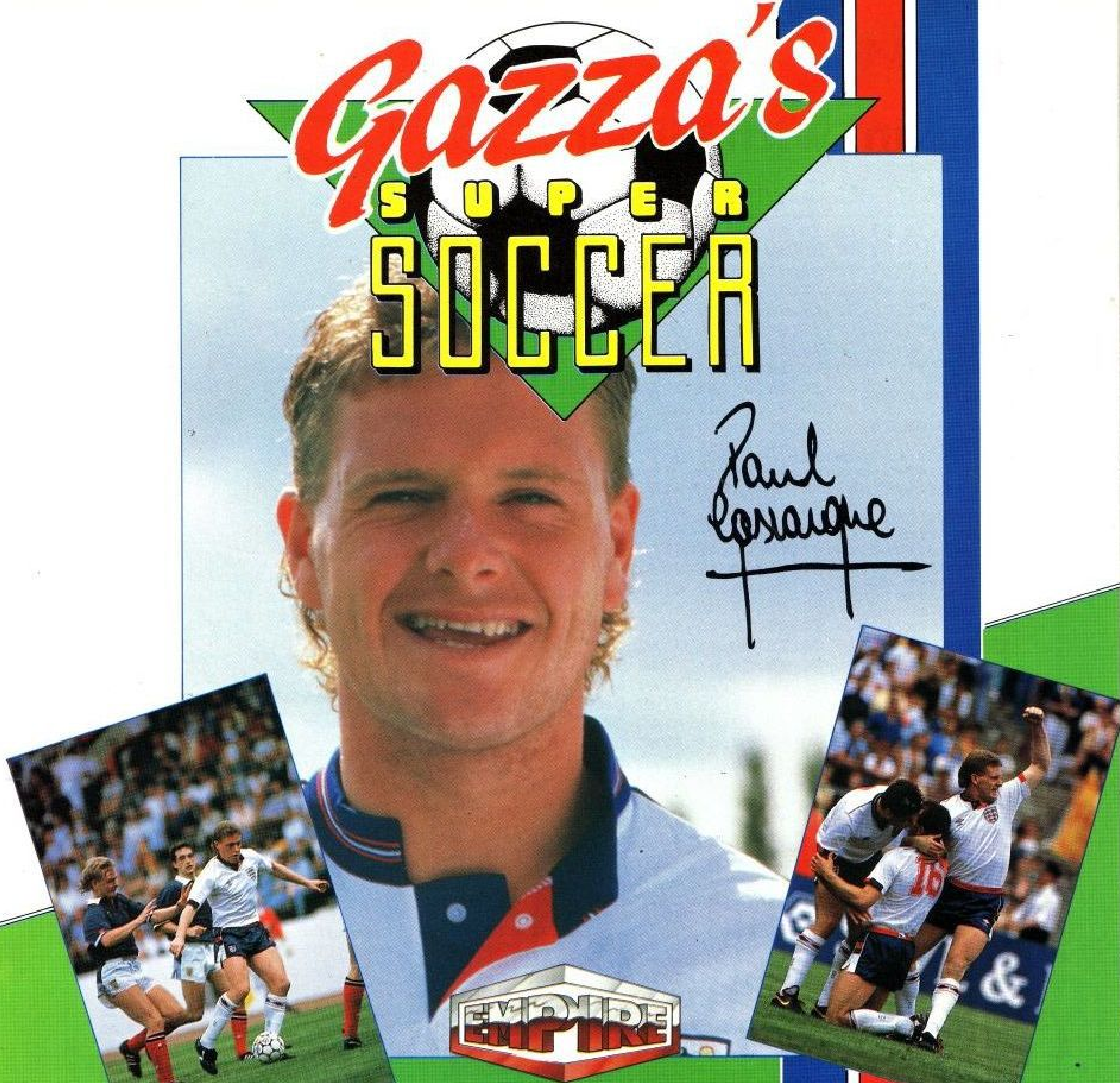
```
10 ln=30:RESTORE 30:FOR adr=&8032 TO &8175 STEP 111:READ byte$:chk=0:FOR i=0 TO
110:v=VAL("&"+MID$(byte$,i*2+1,2)):POKE adr+i,v:chk=chk+v:NEXT:IF chk<>VAL("&"+R
IGHT$(byte$,4)) THEN PRINT"ERROR in line";ln:STOP
20 ln=ln+10:NEXT:INK 0,0:INK 1,26:INK 2,12:INK 3,24:INK 4,25:INK 5,16:INK 6,3:IN
K 7,6:INK 8,0,6:INK 9,6,0:INK 10,9:INK 11,18:INK 12,21:INK 13,18,0:INK 14,0,18:I
NK 15,11:CALL &8032:GOTO 60
30 DATA 2100C01150000619DD210080DD7500DD7401DD23DD231910F3C9FE06CA5A80FE03C0CD80
80C36C80CD8080D5E5110600DD19CD8080CD6C80E1D1012008D5EDA0EDA0EDA0EDA0D13E08825710
F0C9DD6E00260029292929291 1AD8019E5DD6E02DD5E04CD9B80D1EBC91D2DCB2526803357
40 DATA 4E23466B2600CB25CB2509C9000000000000000000000000000000000000000000000000
000000000000000000007700000072AA000072AA050072F5500077AA4CCCCC8C04F0F008000C0C00
000000000000000000000000000000000000FFAA00F53377AAF0F0F5008A008A00040816D1
50 DATA 000058A40004E4F50804D8FF0804D8FF0804F5FE08005DAC000004080043434343820000
0102000041C64400001528CCC41D20F0F8952F0F0E18383838300000000920000001200000 1050A8
0050F4FCA8E4D8F5FEE4F0FFFC54FCFCA800000000FFFFFFFFFF000000000000000000291C
60 MODE 0:LOCATE 1,3:PRINT"Score=";point:LOCATE 2,20:PRINT"Press Enter":LOCATE 6
,22:PRINT"to play..":WHILE INKEY(18)<>0:WEND:CLEAR:CLS:FOR a=1 TO 18 STEP 3:CALL
 &804C,a,25,a/3:NEXT:FOR a=3 TO 20 STEP 3:FOR y=5 TO 25:LOCATE a,y:PRINT CHR$(14
3):NEXT y:NEXT
70 ship=4:car=7:ball=10:shoe=13:sub=16:ship1=1:car1=2:ball1=3:shoe1=4:sub1=5:RAN
DOMIZE TIME:FOR game=1 TO 30:temp=INT(RND*5+1):FOR x=1 TO 20:CALL &804C,x,2,temp
:IF INKEY(47)=0 THEN GOTO 90
80 FOR pause=1 TO 30:NEXT pause:LOCATE 1,11:PRINT point:NEXT x:IF game=30 THEN 6
0 ELSE FOR w=1 TO 20:LOCATE w,2:PRINT" ":NEXT w:NEXT game
90 IF temp=ship1 AND (x=4 OR x=5) THEN point=point+10:GOTO 80 ELSE IF temp=car1
AND (x=7 OR x=8) THEN point=point+10:GOTO 80 ELSE IF temp=ball1 AND (x=10 OR x=1
1) THEN point=point+10:GOTO 80
100 IF temp=shoe1 AND (x=13 OR x=14) THEN point=point+10:GOTO 80 ELSE IF temp=su
b1 AND (x=16 OR x=17) THEN point=point+10:GOTO 80 ELSE GOTO 80
```

LISTCAT

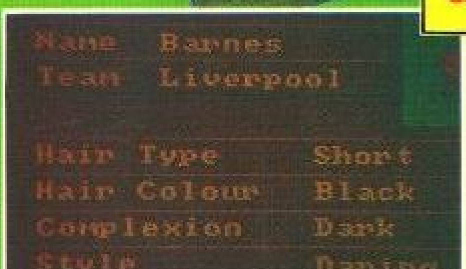
BY ANDREW PRICE

A handy little utility here. The program stores an extended directory of the disc on a hidden file in an illegal user area. It allows inputing of filenames, a note to say what each file does, allows loading and saving of the cat file and editing of the file. Just type RUN (basic).

```
10 DIM file$(64),name$(64):temp=0:' LISTCAT by Andrew Price for ACU
20 CLS:CAT:INPUT"(L)oad or (I)nsert catalogue text";y$:lo$=UPPER$(y$):IF lo$="L"
 THEN 50 ELSE IF lo$="I" THEN 30 ELSE MODE 2:GOTO 20
30 temp=temp+1:MODE 2:PRINT"LISTCAT":INPUT"Enter filename: ";file$(temp):INPUT"E
nter note (no more than 50 chars): ";name$(temp):PRINT:PRINT file$(temp);" ... "
;note$(temp):PRINT:INPUT"O.K.";y$:IF LOWER$(y$)="y" THEN 40 ELSE 30
40 PRINT:INPUT"Another name and file";y$:IF LOWER$(y$)="y" THEN 30 ELSE 70
50 POKE &A701,78:OPENIN"catlist1.bin":FOR a=1 TO 64:INPUT£9,file$(a):INPUT£9,nam
e$(a):NEXT:INPUT£9,temp:CLOSEIN:POKE &A701,a XOR a:INPUT"(E)dit or (L)ist";y$:lo
$=UPPER$(y$):IF lo$="E" THEN 20 ELSE IF lo$="L" THEN 60 ELSE MODE 2:GOTO 20
60 MODE 2:PRINT"LISTCAT CATALOGUE:":FOR a=1 TO temp:PRINT file$(a);" .... ";name
$(a):NEXT:INPUT"(R)un or (E)nd";y$:lo$=UPPER$(y$):IF y$="R" THEN RUN ELSE END
70 POKE &A701,78:OPENOUT"catlist1.bin":FOR a=1 TO 64:PRINT£9,file$(a):PRINT£9,na
me$(a):NEXT:PRINT£9,temp:CLOSEOUT:POKE &A701,a XOR a:PRINT"End of Editing....":E
ND
```



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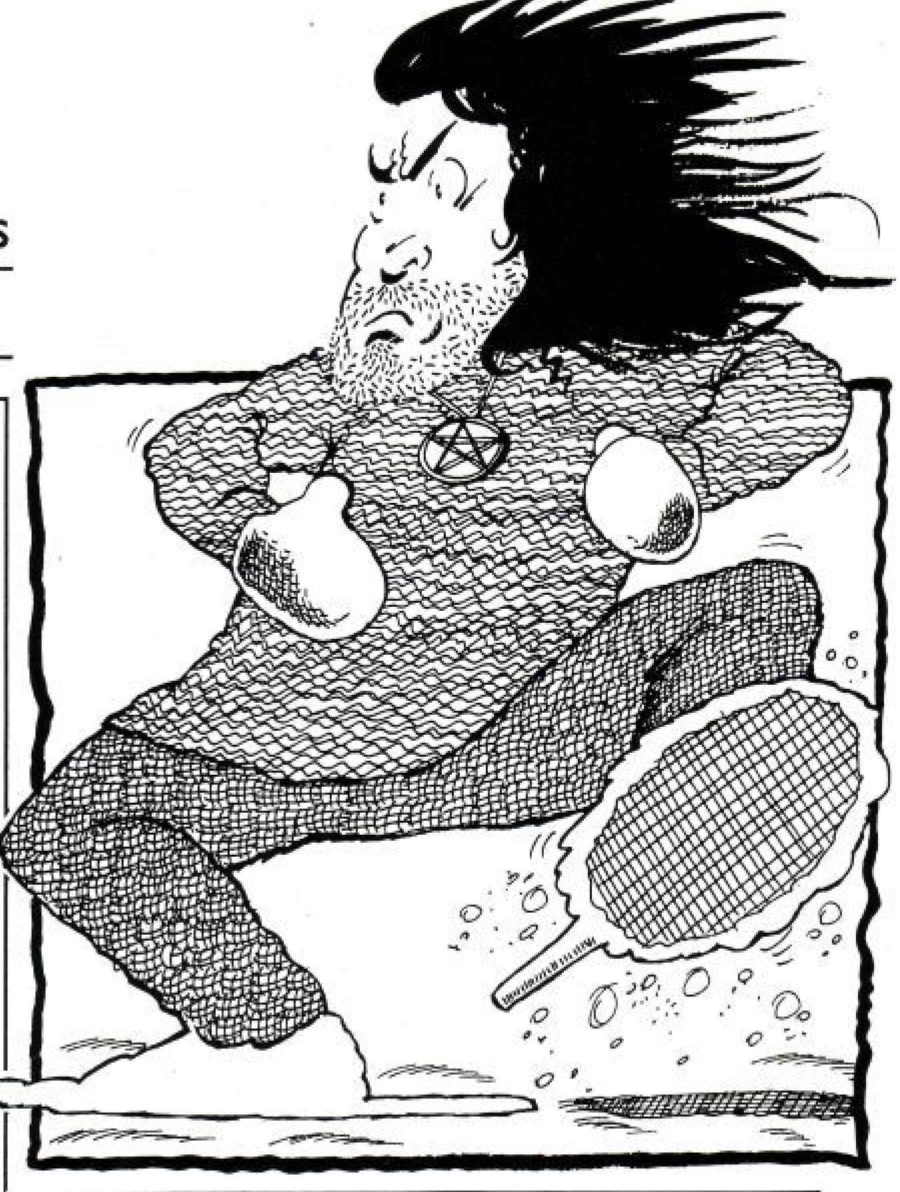


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Groovin' with Girvin

Vyk Olliver gets down to brass tacks with a couple of monster pokes.



Good old John Girvin has been at it again. This time it is a disc he has been putting under the microscope and through the mincing machine. In fact, he has done two of them.

First up is Gremlin's *Techno Cop*. You get to choose infinite time, infinite nukem's, damage-proof VMAX and/or infinite lives to boot. You can also have – under no obligation to buy you understand – the all-new everlasting versions of the dual-stage turbocharger, hydraulic sidearms, and the high-power missile launcher (though the boosters are unreliable in cold weather . . .). Gives a whole new meaning to 'crime doesn't pay'.

Well, here it is, and be careful where the pinkies are plonked, because it does not have checksums and is a bit long. And do not save it on the games disc/k/q. Save it to another one, load it, put the game in the drive, and type RUN without a filename. Have fun:

```
1 'TECHNOCOP hacks (disc)
2 'by John Girvin
3 'September 1989
4 '
10 MODE 1:CALL &BC02:MEMORY &4D6C
20 stat=2
30 bits=128:a$="turbocharger":GOSUB 150
40 bits=1:a$="missile launcher":GOSUB 150
50 bits=16:a$="hydraulic rams":GOSUB 150
60 CLS
70 RESTORE:addr=&6000
80 READ byte$
90 IF byte$="TECHNOCOP" THEN GOTO 130
100 IF byte$="??" THEN POKE addr,stat:GOTO 120
110 POKE addr,VAL("&"+byte$)
120 addr=addr+1:GOTO 80
130 LOAD "disk.bin"
140 CALL &6000
150 PRINT "Constant ";a$;" (Y/N) ? ";
160 ky$=UPPER$(INKEY$)
170 IF ky$<>"Y" AND ky$<>"N" THEN 160
180 IF ky$="Y" THEN stat=stat OR bits
190 PRINT ky$:RETURN
200 '
210 '*** LEAVE 230-1110 IN ***
220 '
230 DATA 21,08,60,0e,ff,c3,16,bd
240 DATA cd,0d,bd,22,34,00,ed,53
250 DATA 36,00,f3,2a,17,bd,22,38
260 DATA 00,01,fc,07,21,95,4d,16
270 DATA 61,ed,56,3e,1c,ed,4f,7e
280 DATA aa,57,77,23,0b,78,b1,20
290 DATA f6,fd,21,3b,60,11,e1,07
300 DATA 21,b0,4d,ed,5f,ae,fd,ae
310 DATA 05,77,23,1b,7a,b3,20,00
320 DATA 28,02,fd,e9,01,d0,07,21
330 DATA c1,4d,37,7e,ce,5b,77,23
340 DATA 0b,78,b1,20,f6,31,8f,55
350 DATA 21,dc,03,ed,5f,4f,d1,7a
360 DATA a9,53,5f,d5,3b,3b,2b,7d
370 DATA b4,c2,63,60,21,fc,4d,31
380 DATA df,4d,11,95,07,d9,21,8b
390 DATA 60,e5,e1,21,e6,4d,01,08
400 DATA 00,09,d9,ed,5f,aa,ae,ab
410 DATA 77,3b,3b,1b,23,eb,7d,eb
420 DATA b2,c0,21,09,4e,01,88,07
430 DATA 0b,35,78,23,b1,20,f9,01
440 DATA 78,07,21,19,4e,7e,c6,4f
450 DATA 77,23,0b,78,b1,20,f6,01
460 DATA 5c,07,fd,21,35,4e,21,4d
470 DATA 0e,ed,5f,fd,ae,00,ac,ad
480 DATA fd,77,00,0b,2b,fd,23,78
490 DATA b1,20,ee,21,42,4e,01,4f
500 DATA 07,0b,78,34,23,b1,20,f9
510 DATA fd,21,98,03,21,60,4e,11
520 DATA 47,08,06,02,ed,5f,ab,aa
530 DATA ae,77,23,05,20,f6,fd,2b
540 DATA 13,fd,7c,fd,b5,20,eb,01
550 DATA 1e,07,21,73,4e,16,43,7e
560 DATA aa,57,0b,77,78,23,b1,20
570 DATA f6,21,83,4e,01,0e,07,ed
580 DATA 5f,ae,0b,77,78,23,b1,20
590 DATA f6,01,fb,06,21,90,55,16
600 DATA 3d,7e,aa,57,77,2b,0b,78
610 DATA b1,20,f6,01,ee,06,21,a3
620 DATA 4e,cb,06,0b,78,23,b1,20
630 DATA f8,01,db,06,21,90,55,16
640 DATA 37,7e,aa,57,77,2b,0b,78
650 DATA b1,20,f6,01,cc,06,21,c5
660 DATA 4e,7e,d6,34,0b,77,78,23
670 DATA b1,20,f6,01,bb,06,21,d6
680 DATA 4e,37,7e,de,31,77,23,0b
690 DATA 78,b1,20,f6,01,a9,06,21
700 DATA e8,4e,16,2e,7e,aa,57,0b
710 DATA 77,78,23,b1,20,f6,01,8a
720 DATA 06,21,07,4f,11,a8,61,d9
730 DATA 21,93,61,d9,ed,5f,ae,ab
740 DATA aa,a9,a8,13,77,0b,79,23
750 DATA b0,28,02,d9,e9,21,17,4f
760 DATA 01,7a,06,7e,ed,44,77,23
770 DATA 0b,78,b1,20,f6,01,6c,06
780 DATA 21,25,4f,cb,0e,0b,78,23
790 DATA b1,20,f8,d9,21,37,4f,11
800 DATA 5a,06,ed,5f,ae,77,1b,7a
810 DATA b3,23,c2,ca,61,01,47,06
820 DATA 21,90,55,16,1f,7e,aa,57
830 DATA 77,2b,0b,78,b1,20,f6,01
840 DATA 36,06,21,90,55,37,7e,de
850 DATA 1c,77,2b,0b,78,b1,20,f6
860 DATA 01,27,06,21,6a,4f,7e,ac
870 DATA ad,77,23,0b,78,b1,20,f6
880 DATA 31,8f,55,21,07,03,ed,5f
890 DATA 4f,d1,7b,a9,5a,57,d5,3b
900 DATA 3b,2b,7d,b4,c2,0e,62,21
910 DATA 91,4f,01,00,06,ed,5f,ae
920 DATA 0b,77,78,23,b1,20,f6,21
930 DATA a0,4f,01,f1,05,7e,2f,77
940 DATA 23,0b,78,b1,20,f7,31,b5
950 DATA 4f,21,ed,02,ed,5f,4f,d1
960 DATA 7b,a9,5a,57,d5,c1,2b,7d
970 DATA b4,c2,44,62,01,c9,05,21
980 DATA c8,4f,16,0a,7e,aa,57,0b
990 DATA 77,78,23,b1,20,f6,21,d8
1000 DATA 4f,01,b9,05,ed,5f,ae,0b
1010 DATA 77,78,23,b1,20,f6,01,a7
1020 DATA 05,21,90,55,37,7e,ce,04
1030 DATA 77,2b,0b,78,b1,20,f6,31
1040 DATA fe,4f,21,c9,02,ed,5f,4f
1050 DATA d1,7a,a9,53,5f,d5,c1,2b
1060 DATA 7d,b4,c2,8d,62,21,80,be
1070 DATA 22,81,52,af,32,76,50,32
1080 DATA 82,50,21,be,62,11,80,be
1090 DATA 01,23,00,ed,b0,c3,5a,50
1100 DATA a4,48,4c,46,09,89,3e,77
1110 DATA 32,8f,8d
1120 'Infinite time
1130 DATA 3e,c9,32,06,78
1140 'Infinite NUKEMS
1150 DATA 21,a7,00,22,10,8f
1160 'Infinite lives
1170 DATA af,21,00,c3,32,81,90,22
1180 DATA 9f,90
1190 'No damage to VMAX
1200 DATA 21,a7,18,22,bc,77
1210 '*** LEAVE 1220 IN ***
1220 DATA c3,00,5e,TECHNOCOP
```

Number two Girvin-victim is US Gold's let's-kill-everything beauty: *Forgotten Worlds*. It has got a fairly large dose of invulnerabilityitis, and as level 3 puts it, "The God of War is shaking in his boots." You need not worry though, this one is even checksummed:

```
1 'FORGOTTEN WORLDS hack (disc)
2 'By John Girvin
3 'September 1989
4 '
10 MODE 2:CALL &BC02
20 OPENOUT"d"
30 MEMORY &8FFF
40 CLOSEOUT
50 LOAD "!disk.bin",&9A24
60 addr=&9000:num=220
70 LOCATE 1,1:PRINT "POKEing line";num
80 check=0
90 FOR dat=0 TO 7
100 READ byte$
110 IF byte$="FORGOTTEN" THEN CALL &9000
120 byte=VAL("&"+byte$)
130 check=check+byte
140 POKE addr+dat,byte
150 NEXT dat
160 READ check$
170 IF check<>VAL("&"+check$) THEN 200
180 num=num+10:addr=addr+8
190 GOTO 70
200 PRINT "eR%iR O((n LLi+n#ee.e";num
210 LIST 220-
220 DATA 21,22,00,11,00,00,22,34,0aa
230 DATA 00,ed,53,36,00,f3,2a,17,2aa
240 DATA bd,22,38,00,01,4a,07,21,18a
250 DATA 4c,9a,16,4f,ed,56,3e,62,32e
260 DATA ed,4f,7e,aa,57,77,23,0b,360
270 DATA 78,b1,20,f6,31,94,a1,21,3c6
280 DATA 99,03,ed,5f,4f,d1,7b,a9,42c
290 DATA 5a,57,d5,3b,3b,2b,7c,b5,358
300 DATA c2,32,90,01,21,07,21,95,263
310 DATA a1,37,7e,ce,49,77,2b,0b,31a
320 DATA 78,b1,20,f6,01,14,07,21,27c
330 DATA 82,9a,cb,0e,0b,78,23,b1,34c
340 DATA 20,f8,01,02,07,21,94,9a,271
350 DATA 16,43,7e,aa,57,0b,77,78,2d2
360 DATA 23,b1,20,f6,01,f2,06,21,304
370 DATA a4,9a,7e,d6,40,0b,77,78,3cc
380 DATA 23,b1,20,f6,01,df,06,21,2f1
390 DATA 95,a1,16,3d,7e,aa,57,77,37f
400 DATA 2b,0b,78,b1,20,f6,d9,21,36f
410 DATA c8,9a,11,ce,06,ed,5f,ae,441
420 DATA 77,1b,7a,b3,23,c2,9d,90,3d1
430 DATA 01,be,06,21,d8,9a,7e,c6,39c
440 DATA 37,77,23,0b,78,b1,20,f6,31b
450 DATA 21,e5,9a,01,b1,06,0b,35,298
460 DATA 78,23,b1,20,f9,21,f2,9a,412
470 DATA 01,a4,06,0b,78,34,23,b1,236
480 DATA 20,f9,01,93,06,21,03,9b,272
490 DATA 37,7e,de,2e,77,23,0b,78,2de
500 DATA b1,20,f6,01,83,06,21,13,285
510 DATA 9b,7e,ac,ad,77,23,0b,78,38f
520 DATA b1,20,f6,21,22,9b,01,74,31a
530 DATA 06,7e,2f,77,23,0b,78,b1,281
540 DATA 20,f7,01,63,06,21,33,9b,270
550 DATA 37,7e,ce,25,77,23,0b,78,2c5
560 DATA b1,20,f6,21,43,9b,01,53,31a
570 DATA 06,ed,5f,ae,0b,77,78,23,31d
580 DATA b1,20,f6,01,45,06,21,51,285
590 DATA 9b,cb,06,0b,78,23,b1,20,2e3
600 DATA f8,01,32,06,21,95,a1,16,29e
610 DATA 1c,7e,aa,57,77,2b,0b,78,2c0
620 DATA b1,20,f6,01,21,06,21,95,2a5
630 DATA a1,37,7e,de,19,77,2b,0b,2fa
640 DATA 78,b1,20,f6,21,84,9b,01,380
650 DATA 12,06,7e,ed,44,77,23,0b,26c
660 DATA 78,b1,20,f6,01,f6,05,fd,438
670 DATA 21,a0,9b,21,14,05,ed,5f,2e2
680 DATA fd,ae,00,ac,ad,fd,77,00,478
690 DATA 0b,2b,fd,23,78,b1,20,ee,38d
700 DATA 01,d7,05,21,bf,9b,11,a8,311
710 DATA 61,d9,21,8d,91,d9,ed,5f,49e
720 DATA ae,ab,aa,a9,a8,13,77,0b,3e9
730 DATA 79,23,b0,28,02,d9,e9,21,359
740 DATA e3,9b,31,c6,9b,11,b3,05,3d9
750 DATA d9,21,b6,91,e5,e1,21,cd,4f5
760 DATA 9b,01,08,00,09,d9,ed,5f,2d2
770 DATA aa,ae,ab,77,3b,3b,1b,23,32e
780 DATA eb,7d,eb,b2,c0,fd,21,ca,5ad
790 DATA 02,21,01,9c,11,0b,0c,06,0ee
800 DATA 02,ed,5f,ab,aa,ae,77,23,3eb
810 DATA 05,20,f6,fd,2b,13,fd,7c,3cf
820 DATA fd,b5,20,eb,21,12,9c,01,38d
830 DATA 84,05,ed,5f,ae,0b,77,78,37d
840 DATA 23,b1,20,f6,01,72,05,21,283
850 DATA 24,9c,16,04,7e,aa,57,0b,264
860 DATA 77,78,23,b1,20,f6,fd,21,3f7
870 DATA 10,92,11,57,05,21,3f,9c,20b
880 DATA ed,5f,ae,fd,ae,05,77,1b,43c
890 DATA 7a,23,b3,20,00,28,02,fd,297
900 DATA e9,21,44,92,11,80,be,01,330
910 DATA 0d,00,ed,b0,21,00,00,22,1ed
920 DATA b8,9c,22,c4,9c,21,80,be,435
930 DATA 22,c7,9e,c3,9a,9c,a4,48,46c
940 DATA 4c,46,09,89,af,32,f3,00,2f8
950 DATA 32,fd,00,32,10,01,c3,28,25d
960 DATA 00,00,00,00,00,00,00,00,000
970 DATA FORGOTTEN,4a
```

Thank you for those weensy little pokeykins, John. Watch the parcel port in your door.

Well, if your pokeykins has not been printed this month, do not despair. It takes a while to get things published and I have this little lost-and-found routine I seem to go through every month. Mind you, of all the things I have lost, I miss my mind the most. See you!

Luv 'n' Stuff,
Vax, Suz, and Kate

BrunWord

BrunWord 6128 £30

BrunWord 6128 is a complete word processing package consisting of three programmes, a word processor, a spelling checker and a card filing programme. It is written to run on a standard unexpanded CPC6128 (or CPC464 + disc + 64K) and is optimised for use with a single disc drive. The latest version was released in October 1988 and out performs any other word processor for the CPC6128.

The integrated spelling checker of BrunWord 6128 and its 30,000 word dictionary load at the same time as the main programme. We invented a special system to compact the dictionary so much that each word is represented by just one and a half characters. Each group of words had to be given the correct group ending and typed in by hand, taking one 'man' six months to complete. With such a compact dictionary, we are able to store this in the 64K of banked memory, making access very convenient and exceptionally fast.

Our closest rival claimed that their spelling checker achieves 'up to 2000 words per minute'. Our tests, published at the October 88 Amstrad show, revealed that its average speed for a file of 3366 words was only 526 words per minute and much more to our surprise, that it required eight changes of the disc to complete the spelling test. Our spelling checker, BrunSpell, achieved 3883 words per minute for exactly the same test and needed no disc in the drive. Remember that all other word processors need to load the dictionary from disc during the spelling test, even the so called ROM versions.

Scrolling the screen one line at a time, is also a vital performance test, as the CPC6128 tends to be naturally slow at this. Again, our closest rival is widely regarded as very fast, but BrunWord is 40% faster......

BrunWord has a 40 page manual which has several detailed examples, starting with step by step instructions to produce and print a simple letter. But your very first step is to load the TUTOR file into BrunWord. This takes even the complete novice straight into word processing and demonstrates the powerful editing and formatting features of BrunWord. There are also examples of printer control, showing how to create headings, to underline or to emphasise, and five deliberate spelling errors for you to correct. The tutor takes about 20 minutes to run through and after that you will feel confident to type in your own text.

Our Booklet 'BrunWord & Printer' has 5 pages devoted to the BrunWord 6128 package.

BrunWord Features

*40, 80 or 128 column display. *Touch typing speed over 200 words/min. *True insert or overwrite. *Justify or unjustify paragraph or whole text. *Justified text has balanced appearance. *Instant word wrap. *Block save, move, copy, insert and delete. *Local editing with word delete/undelete. *Adjustable margins and TABs. *Column/Line/Page display with file name. *True word count. *Find and replace. *Help menus. *Memory filing system. *Single character embedded printer commands (18 with 3 printer codes and 21 with 10 printer codes). *Page throw markers. *Multiple copies. *Odd/even page headers/footers with page numbers. *Multi file printing (new page or continuous). *Print specified pages. *Works with any printer. *True display superscript and subscript numbers. *User defined print characters. *Load ASCII files from other word processors. *Save ASCII files for other word processors. *Files can be encrypted. *Maximum file size about 9 pages of text.

BrunSpell Features

*Memory resident with word processor. *Checks 4,000 words/min. *30,000 word dictionary. *No American spellings. *Add up to 5,000 of your own words. *Instant lookup. *Helps to find correct spelling. *Automatic correction.

DataFile Features

*Alphabetical, numerical, date sorting on any field. *User defined headings. *Search routine. *Data merging into BrunWord. *Label printing.

Info-Script £50

Take the BrunWord package, expand the simple card filing programme into a comprehensive relational database and integrate this into BrunWord. The result is Info-Script. The database uses many of the internal routines of the word processor, making a very compact combination and allowing both programmes, 6 pages of text and 1000 names and addresses to be in the memory at the same time, using an unexpanded CPC6128. The great advantage of this is the speed and convenience of being able to access both programmes and their related data without any disc delays. Add to this the progressive search routines, the unique four marker system and the arithmetical functions and you will begin to understand the excitement of our customers.

Database Features

*Very fast (e.g. takes 1 second to search 2000 addresses for surname 'Smith', initial 'B'). *Specific field search and/or progressive general search. *Instant sort on any field, alphabetical, numerical, date or reverse order (takes no time as the data does not move). *3 sets of user defined headings for each file. *4 markers for instant selection, plus one temporary marker. *Markers can be cleared or inverted and any pair can be added (allows complex searches to be quickly and easily performed). *No setting up of field type or length. *Efficient storage. *Relational records, Parents, Sons and Daughters. *Simple field to field arithmetic with running total. *Direct data merging into BrunWord. *Easy direct label printing, 1 across, 2 across, left of 2 or right of 2. *Single or multi-step.

Data Merging Features

*Simple intelligent system, &N &A &D construct full name, full address and date. *&1 &2 etc specify individual fields. *Insert or fixed format merging. *Automatic justify after merging. *Single step (see before printing) or multi-step. *Stop any time, go to word processor, restart same place. *Merge data from several records for summary, invoice, purchase order etc. *Simple arithmetic. *Running total. *Running VAT total. *Conditional loading. *Conditional printing. *Repeat patterns.

Upgrade £32.50

Send your BrunWord instruction manual (and one of your BrunWord discs if you have purchased a backup copy) and a cheque for £32.50. We will send you the Info-Script manual and one new Info-Script disc. Then send your BrunWord disc for us to update as your backup copy (cost included).

100 Letters £15

This is a utility for use with Info-Script, enabling pre-written letters to be easily selected and personalised. It is supplied with a library of over 50 letters.

Free Booklet

We have written a sixteen page booklet which explains all about our programmes, starting with BrunWord 6128 and going on to Info-Script and BrunWord Elite. It is free to all CPC owners. Simply write your name and address in block capitals on a sheet of paper and send in a envelope to 'BrunWord & Printer', Brunning Software, at the address below.

BrunWord Elite £90

Vic Barnes, of Shepherds Bush, London, is a photographic journalist. He earns his living from the typewriter, or to be strictly accurate, from his CPC6128 + Star LC24-10. His work can be seen in various magazines including a recent article, with his own stunning photographs, about touring Scotland on his BMW motorcycle. He also regularly writes two Newsletters.

Prior to December 1989 he was a dedicated Protext ROM user and had said that he could not imagine ever wanting to change his word processor. Quite typically, it was soon after saying that that he noticed our BrunWord Elite advertisement. He gave us a long and detailed grilling over the telephone and promptly sent us an order. His order has the distinction of being the very first BrunWord Elite order in our order book. It was dispatched to him on 21st November 1989.

On December 10th he wrote:- "I've spent quite a few hours thrashing your quite brilliant programme, which so far has proved completely bug free. I have enclosed copies of the first two Newsletters created with it... I am now eager to produce more complex layouts. BrunSpell is amazing, no - turbo-charged! The 'look-up' feature has proved to be instantaneous. Info-Script seems very comprehensive but I still have a lot to learn... ".

We have had several telephones calls from him since, and happily he is still just as impressed. On Friday 5th January, he rang with a query about footers and without being prompted said "I haven't used Protext since I received BrunWord Elite". What more can we say?

(We asked permission to use his name & address).

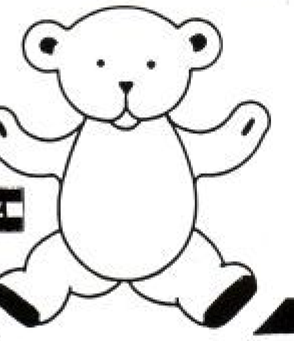
Letters

Regretfully I have recently upgraded my computer system to a 'PC' and I have sold my Amstrad CPC664. I therefore can no longer use your excellent software. I found BrunWord a powerful and easy to use programme from which many of the ungainly 'PC' word processors could learn a great deal. Many thanks for your hard work and good luck with your future products.
Mr M (Camberley).

Find enclosed my second disc for updating to BrunWord Elite. The reason for writing is to say how much I appreciate your product. I have used Info-Script and BrunWord for years now and find it so easy to use. I don't think you have noticed that there are a couple of spelling mistakes in your Fonts & Examples disc... try BrunSpell its an excellent spelling checker. (Thanks we take the point!). Thank you for keeping me up to date with your products they really are excellent, keep up the good work.
Mr W (Tipton).

Your BrunWord is certainly very good. My wife suggested that I might need a better computer than my Amstrad CPC6128. My reply is that this would mean accepting an inferior word processor.
Rev H (Wigan).

Send cheque/PO/Access number/Visa number to:



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PROPRIETOR M.J. COOPER

Gameplan is bigger than ever before this month with an amazing 16 different games reviewed. Top of the bill is Chase HQ, probably the best of the recent rash of driving games. The best of the rest includes Dan Dare III, Knight Force and a new budget games page for those who like cut-price action.

GAMEPLAN



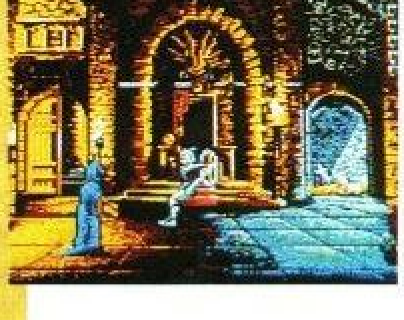
CHASE HQ

Smash Ralph the Idaho Slasher off the road in this high speed coin-op conversion.



DAN DARE III

Help this durable superhero from time immemorial overcome the evil Mekon.



KNIGHT FORCE

A swashbuckling adventure that has you leaping through time zones to rescue a damsel.

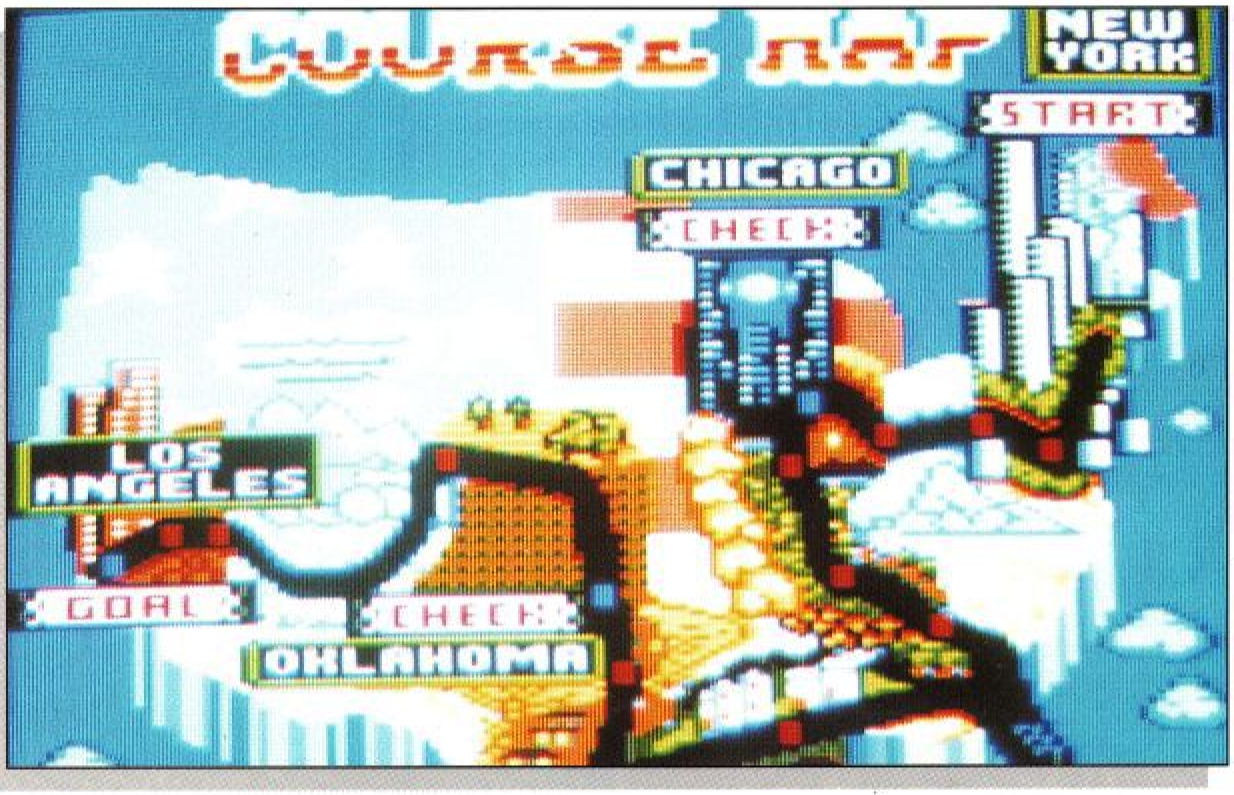
PLUS

Turbo Outrun, Super Wonderboy, Coin-Op Hits, Cluedo, Monopoly, Scrabble, Assault Course, MiG Busters and five other budget delights.

TOP 20

1	Batman – The Movie	Ocean
2	Robocop	Ocean
3	Paperboy	Encore
4	Operation Thunderbolt	Ocean
5	Ghostbusters 2	Activision
6	Pub Trivia	Code Masters
7	Crazy Cars	Hit Squad
8	100% Dynamite	Ocean
9	Father Christmas	Alternative
10	Ghosts and Goblins	Encore
11	Short Circuit	Hit Squad
12	Untouchables	Ocean
13	Renegade	Hit Squad
14	Continental Circus	Virgin
15	Batman 3D	Hit Squad
16	Power Drift	Activision
17	Rampage	Hit Squad
18	Cobra	Hit Squad
19	Twin Turbo V8	Code Masters
20	Chase HQ	Ocean

Top 20 compiled by Gallup



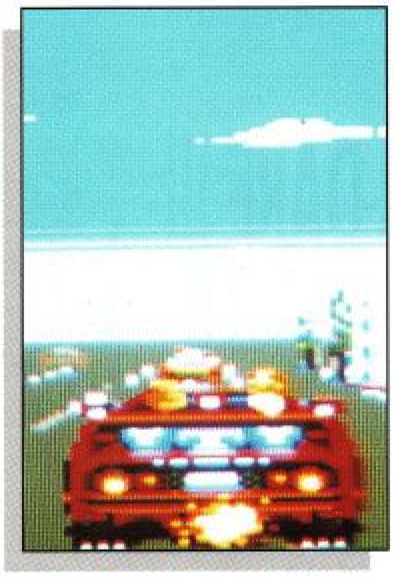
Turbo Outrun

A conversion of the monster coin-op hit, and yet another driving game.

Tea was my favourite drink. Hot and kind to the palate. But tea has an image problem, especially in the US. They called me lemony or something, saying I was too English for my own good. But I shocked them once and ordered a glass of Bourbon County. Cool and strong. The shock. Good and bad. Long and short. Hot and cold. In and out. All the extremes of life were swimming past my eyes. Suddenly I felt like driving. Then I remembered . . . all those jingles and songs and angry rockers and posters and messages on beer mats. Don't drive drunk.

Deep regret followed. My urge for the road, hampered by a mere whim to fight an image. I had to sober up. Tea. More tea. Tea and toast. By the eighteenth cup, morning had broken. My head was hollow and my eyes built like a stained-glass window. Thankfully my car had stuck to Perrier the night before and didn't fall for the temptations of bourbon.

There it sat, red, sleek, effusing motorisation and reeking of racing. A Ferrari F40 was more than a car. It was a legend. If it couldn't walk the catwalk, fashion was a sham. Red, pulsing, bulbous like a ripe snooker ball. Engine – purring. A craving for the stench of rubber on tarmac . . . rock . . snow. A craving for the sight of windscreened vistas. A craving for a lack of paving. Road time!



New York. Speeding to the core of the Big Apple. Taking a bite from the neon smudged night, gotta keep cruisin', gotta keep movin'. Four-wheel frenzy and it's my turn to drive.

Four stages to complete, four cities each heat. Conditions. Locations. I only ever see the road. Driving day, driving night, not able to distinguish black from white. The rhythm of the road beats through my veins and it beats and it beats as it rains and rains. The highway code would advise to pull over and take forty winks, but I'm on a run and I'm short on time and I only see the finish line.

Overtake. Cut up the opposition. Drivers who are just as sick of the road as you. Avoid the obstacles. Out run. Out run. On to LA, city of angels, California dreamin'. The finish line. I see the finish line. Through the line, glory bound. Garland crown. Safe and sound.

Turbo Outrun is a race against a Porsche 959 across the United States of America. From New York to Miami, Miami to Oklahoma, Oklahoma to LA, the game provides a varied scenery with competent graphics. Some of the most memorable aspects of the game concern the scenery. The giant moon beaming over nightime Chicago and the desert red sun shining over the desert. With 15 cities and the Grand Canyon to race through you should at least brush-up on your geography.

Controlling the car is a little difficult at times, even with a joystick, although this may be a result of my poor quality machinery or lack of coordination.

The turbo option can send the car flying to avoid the Police and speed away in the race although, if it is not used sparingly, the car may overheat.

The game is big. Sega bill it thus: 'Driving's biggest game ever just got bigger.' If compared with Ocean's *Chase HQ* it is possible to realise that size isn't everything. 'Turbo Outrun' does not have the edge that Chase HQ offers in terms of speed and action. It is a large driving game with a good concept but I tend to think that the bigger the shoes the sloppier the feet.

Basil Bread

ROUND-UP			
NAME	Turbo Out Run		
SUPPLIER	US Gold	PRICE	£14.99 (disc) £9.99 (tape)
79%	30%	63%	58%
GRAFFIX	SONIX	PLAYABILITY	OVERALL



Super Wonderboy

An adventure that's low on colour but high on action. Guide your kid past baddies and pick up potions.

Where will he pop up next, I ask myself. This kid has got truancy off to a fine art, but its all in a good cause, so I suppose teacher won't mind if he goes wandering off again.

Its swords out and cross-country high adventure for Wonderboy this time in his quest to seek out and destroy a vicious dragon who's been terrorising the neighbourhood for some time. The monsters en route are not too friendly either, but don't worry, there are plenty of helpful locals willing to sell you extra goodies – at a price.

A first glance at Super Wonderboy does not do a lot for the old adrenalin. Apart from a nice, bright loading shot, the rest of the game is in monotonous mono. Although the graphics are clear and imaginative in places, one can't help thinking a little colour wouldn't have gone amiss.

Don't expect too much on the sound front either. Admittedly, there are some pretty eccentric sounds for your swordplay, but blips and blops and beeps do tend to get a little tedious after a while, and believe me, it is a while.

But hang on, don't stop reading yet. Despite these little problems, the game is immensely playable and very enjoyable. There is a lot of information stored within and it is well worth unwrapping.

All you know at the start of your quest is that there is a nasty dragon out there somewhere that needs a proper kicking. But keep an eye out for the doors, press the space bar and hey presto, you are in a drinking house where you can get information or some juicy weapons. You can even cure yourself if you can afford it.

Following the advice of these friendly patrons will take you through some wacky locations, carrying out different tasks that will eventually lead you to your goal. There's a letter to be delivered to Catherine in the coastal town of Baraboro, a magic flute that needs to be played on the echo tower of Pororo Island so that an old man can hear it, a desert to cross, a pyramid to explore...the list is seemingly endless.



One of the points that will keep you coming back is the life system of the game. At the end of each level, an extra life is added to your total which you will need once you get past the early stages. Revival potions can also dig you out of a lot of trouble.

When you dispatch one of the meaner end of level monsters, your offensive powers are increased to help you deal with the larger baddies. The only drawback here is that if you get killed and decide to continue your game, these powers are lost, leaving you feeling a little outgunned.

If you like epic adventure with a cast of thousands then this should be right up your street. But if its colour, kapow and mega-blast you're after, pick again.

Chris Knight

ROUND-UP

NAME	Super Wonderboy		
SUPPLIER	Activision	PRICE	Tape £9.99 Disc £14.99
58%	50%	76%	64%
GRAFFIX	SONIX	PLAYABILITY	OVERALL

Dan Dare III

Dan's back and he's meaner than ever in his latest epic struggle with the Mekon.

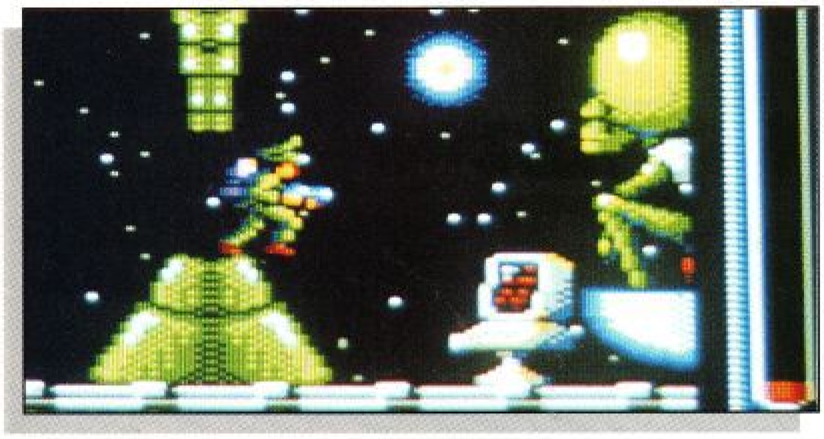


Look out folks! Dan Dare is back, and this time he's meaner and sorer than ever before as he loads up for another round of mutant zapping and Mekon mashing.

Here's the story so far – The evil Mekon has kidnapped our hero and whisked him away to a scientific satellite high above Venus to carry out horrifying "Treenisation" experiments on him. Ouch!

But, and it's a big but, just as the surgeons' knives are poised for the dramatic snip, Dan stages a dramatic escape out into the vaults of the satellite.

Once on the loose, the first thing he finds is a discarded jet-pack, very handy. Then, at the end of a dark corridor, he discovers a powerful starship which will take him home. Now hang on a second, this all sounds just a little too easy, you might think; and so it is.



There isn't enough fuel to take dashing Colonel Dare back to Earth and this is where you take over. Get the picture? Good.

Hidden on each of the five levels of the satellite is a fuel drum which you need to find to get Dan home, but between you and them is a veritable army of mutants just waiting to gun you down, so beware, you have been warned.

Without much further ado, it is pretty safe to say that the game will be a success, following in the footsteps of its predecessors and, despite my fears, it more than lived up to the outlandish storyline.

You start off on your quest with just a plasma rifle, and although there is no fuel for the spaceship to reward you for your efforts on the first stage, there is the chance to hack into the nasty Mekon's nifty computer and stock up with an extra life – if you had the misfortune to lose one – and some meatier fire power – smart bombs are always fun things to have.

At the end of each stage, and usually guarding the fuel, is the Mekon himself. Oh yes, you don't get away with it that easily. He takes some shooting, but once gone, he will throw out the telepod key you need to get to the next level before returning to his regeneration unit ready to meet you further on.

Now, if you thought the mutants were bad enough, try teleporting to the next stage without losing a life for the first few games. It's certainly no joyride.

As you wend your way through the vaults, the screen scrolls smoothly and clearly towards you, and the sound effects are pretty realistic too. You certainly feel it when a mutant plasma bolt catches you in the chest. One of the nicer tricks in the game is your three level plasma rifle, which can increase in power the longer you hold down the fire button.

So, you can nuke them, bounce bombs at them or shoot them in three different ways. I don't care how you do it, but if Dan's going out of his way to provide this much entertainment for us, the least we can do is kill those mutants and help him escape.

Chris Knight

ROUND-UP

NAME	Dan Dare II		
SUPPLIER	Virgin Mastertronic	PRICE	Disc £14.99 Tape £9.99
89%	80%	93%	90%
GRAFFIX	SONIX	PLAYABILITY	OVERALL

Coin-op Hits

A rather disappointing collection of arcade favourites including Thunder Blade and Out Run.



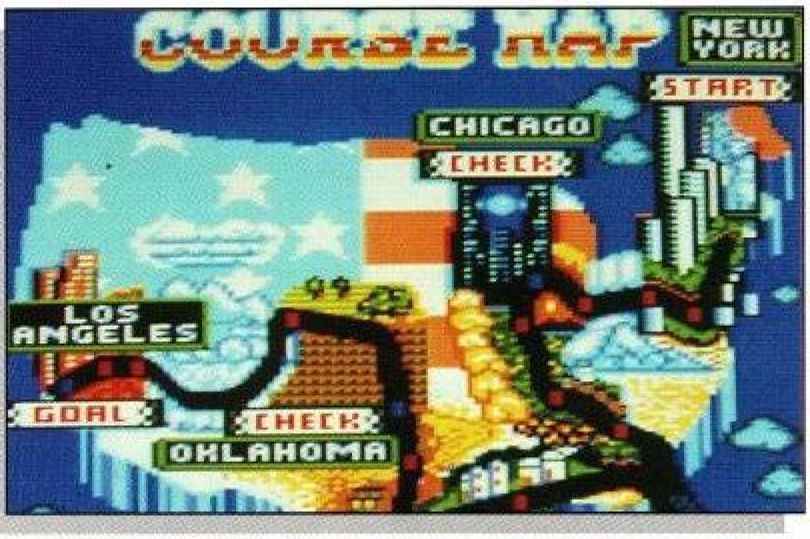
One thing that is correct about this compilation is the misleading packaging. US Gold boldly claim that *Coin-Op Hits* is "a collection of five of the best selling arcade games of all time". That in itself is quite fair. *Out Run, Spy Hunter, Thunder Blade, Road Blasters* and *Bionic Commando* all have achieved great arcade success. Unfortunately, converting them onto the CPC in the way US Gold has done is



a mistake. The CPC conversions are either years old or have just been badly programmed or both.

I remember seeing these games a few years ago and thinking that there was no way they could ever be released as budget games or as part of a compilation. Sadly US Gold has chosen to release a compilation of some of the worst coin-op conversions ever produced for the CPC.

Out Run has you situated in a Ferrari Testarossa. Unfortunately as you start your driving there isn't much to do, the game plays slowly and the backdrops look very basic and rather dull. Spy Hunter is a car shoot-'em-up with you in a car scrolling upwards avoiding various obstacles and shooting anything that moves. Way back in 1985 this was just about alright, but today it looks less than impressive and the graphics are not even properly defined. Thunder Blade gives you the chance to fly a helicopter and blast to death everything and anything that moves. If it moves, shoot it. Unfortunately for Thunder Blade freaks, there was no way to move the helicopter forwards, at least not in the version I played. All you could do was go left and right and up and down.







Well, for about three or four minutes this might be fun, but after a while it does get a trifle boring. Road Blasters looks and plays fairly well. It is Out Run with lots more violence thrown in. Knocking people off the road or shooting them, is the aim of the game. This sustained my interest for quite a while, combining fast actions with some nice backdrops. The final game on the compilation is Bionic Commando. Here you can leap, run, jump and of course shoot things to pieces. Again, this was just about acceptable and did sustain some interest but after a while there is only so much leaping around and killing a person can do before they get rather bored of the whole affair.

Coin-Op Hits is boring, the games represent nothing new or exciting, I had no urge to play them beyond bedtime. I am surprised that US Gold should have lowered themselves to bring out this compilation. It is fair to assume that on most compilations you get one or two duff titles, but when it is five bad titles out of five then there must be something seriously wrong. Compilation games normally represent some form of value for money, but when they consider of generally appalling games which have no lasting interest then they are of no value whatsoever. Maybe if Coin-Op Hits cost a couple of pounds, then US Gold could justify it as a release.

Leslie Bunder

ROUND-UP			
NAME	Coin-Op Hits		
SUPPLIER	US Gold	PRICE	£19.99
30%	40%	25%	35%
GRAFFIX	SONIX	PLAYABILITY	OVERALL

The chase is on as you've never seen it before. The squealing tyres on hairpin bands, the nerve shattering boost of the turbo, and the criminals. You have to be good, very good, to be admitted to Chase HQ. No dowdy squad cars for these guys but the groin throbbing power of a black Porche 944.

Nancy calls the shots and away you go. A burst of sampled speech, so good you don't have to squint to understand it, and you put the pedal to the metal. The tyres scream as you switch to high gear and the chase is in full swing. You have 60 seconds to find the first bonus points. Speed is critical but the loss of bonus points is a crying shame. Each car safely passed earns you a bonus. This bonus doubles with each car passed until it reaches a maximum of 8000 points. Hitting a fellow road user not only loses you the bonus but resets it to 200.

At the speeds your car travels the road behaves in some unusual ways. The everyday undulation of the highway turns into ramps and more often than not you find yourself flying through the air, engine revving, and yourself cringing, waiting for the impact. Just when you master staying on the





Chase HQ

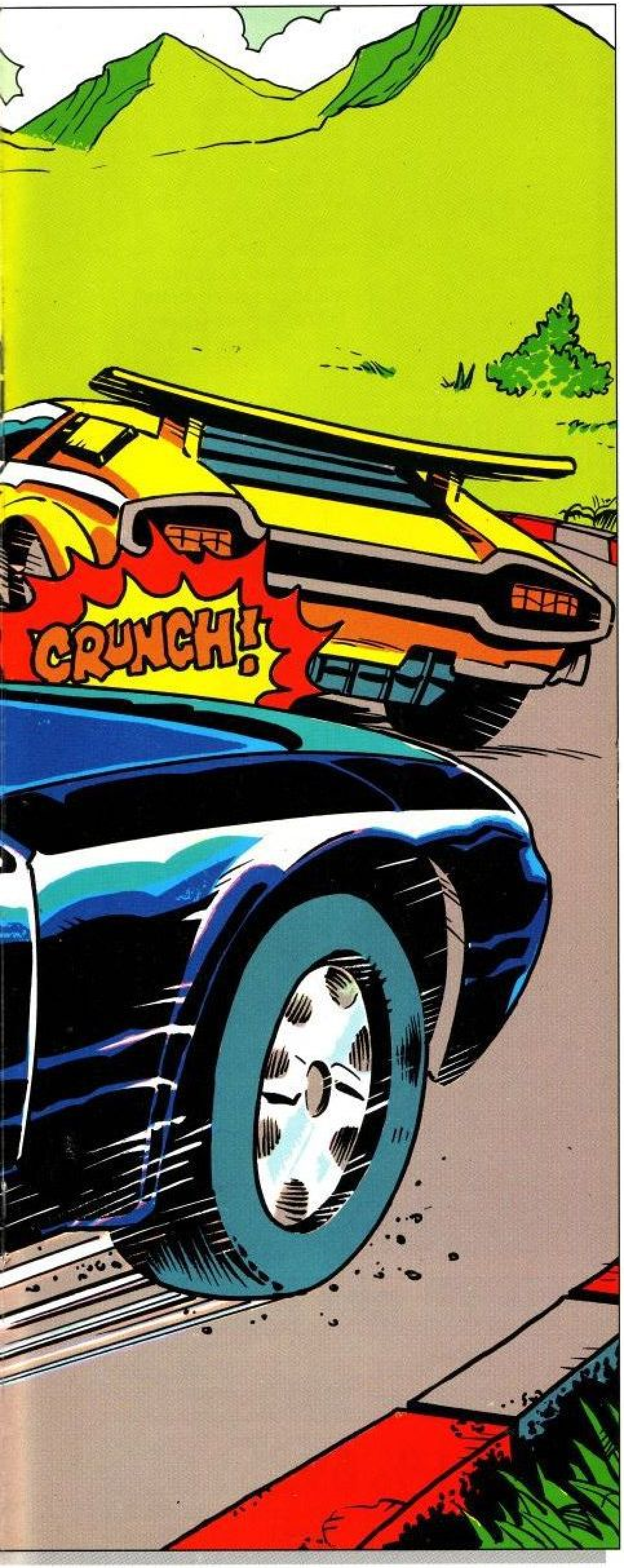
Another driving game, but one with a real difference as you ram the crooks off the road in your Porsche 944.

crook but he is fast so you have to be faster. At the top of the screen is a small display showing the distance between you and him, but don't let this discourage you, you have the means to burn that sucker.

Despite your status as a law enforcer the public are less than happy about pulling over. Passing the other road users peacefully has several advantages. A collision results in a loss of speed, definitely not helpful, the destruction of the offending car and the loss of road the program throws a curve ball. The road splits and you find yourself traversing a less than friendly short cut.

Here the tarmac surface disappears and you find yourself pounding a dirt track. Alone this does not present much of a problem but barricades and scrub dot the landscape. Hitting these results in an aerial display of debris and a loss of valuable speed.

The final stretch of road between you and the villain passes through a lighted





tunnel. Here you can create some interesting pyrotechnics by scraping your car along the walls.

If you manage to close the distance between you and the escaping criminal the combat begins. The desperado is not about to pull over for a mere Porsche, so brute force must be used. To arrest the offender you must repeatably ram his car until it ceases to function. A damage indicator at the side of the screen displays the amount of damage you have inflicted upon the enemy vehicle and how much is left before he relents and pulls over ready for arrest.

During the chase you may find yourself lagging behind so a quick tap of the space bar activates the turbo and you hurtle forward, wheels screaming, into the fray. Three turbo boosts are available on each level so judicious use is essential.

If you fail to disable the crook within the allotted 60 seconds you lose a life. Being benign souls, the game creators allow you to continue the game three times. This may help you to explore further levels but the points accumulated are less than those by completing the game the first time round.

There are five criminals for you to pursue in this game each fully described at the beginning of the level by the delectable Nancy radioing Chase HQ. Throughout the game there are a number of hidden bonuses to collect. This means that it is often best to deviate from the seemingly best route in order to seek out those precious points.

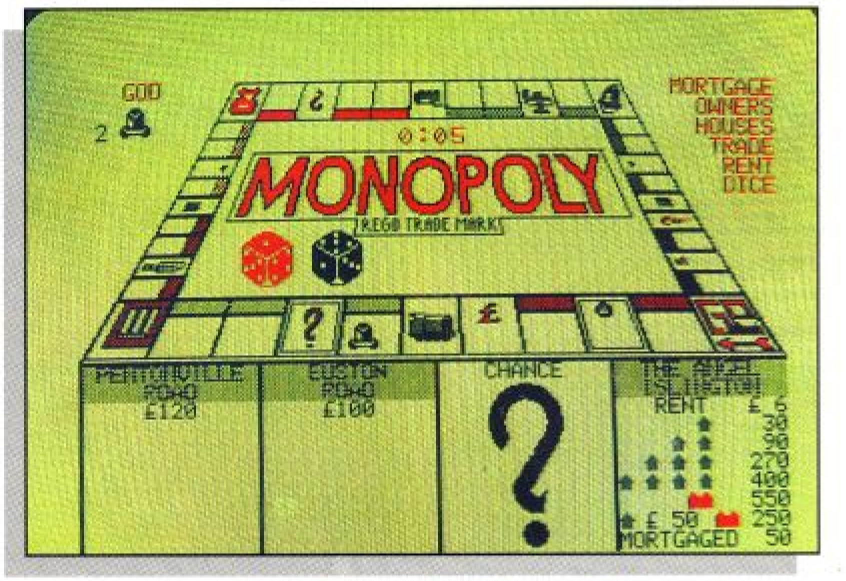
On the CPC few games can match the pace or the action of this game. The smoke and screaming tyres add the intangible tension that turns this from a game you play around with to a challenge worthy of serious attention. The only gripe I have is all the sleep I lost due to playing this game well into the night.

Adrian Pumphrey

ROUND-UP			
NAME	Chase HQ		
SUPPLIER	Ocean	PRICE	£9.99 (disc) £14.99 (tape)
85%	80%	95%	90%
GRAFFIX	SONIX	PLAYABILITY	OVERALL

Monopoly, Scrabble, Cluedo

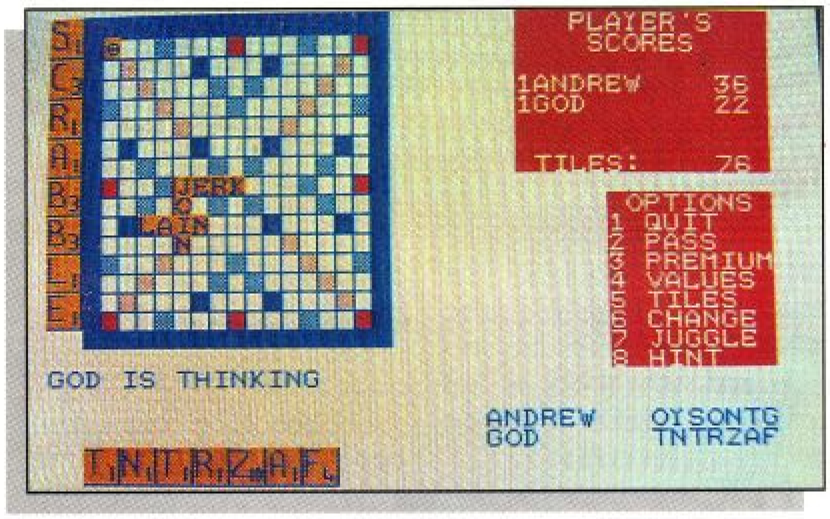
Enjoy the thrill of the board game without having to share it with annoying friends and relatives.

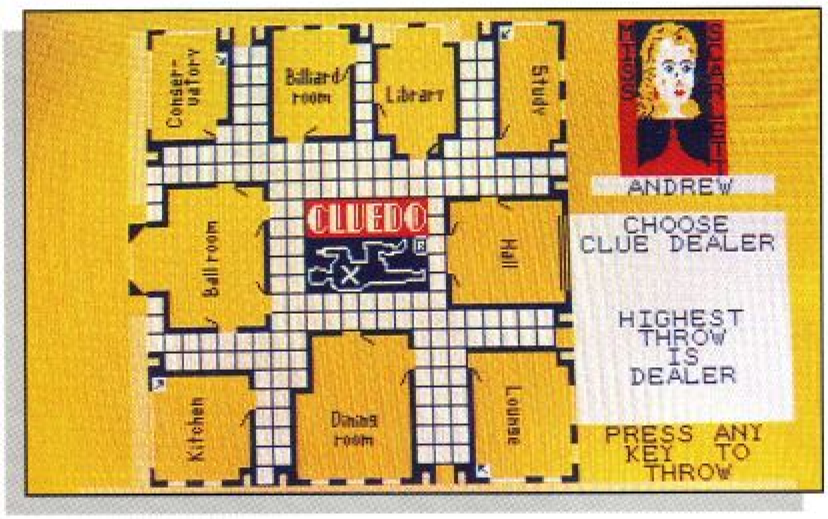


If Christmas got you absolutely bored with board games, the whole family sitting around the dining table, Gramps complaining because nobody wanted to play Pontoon, you can now slink off to the bedroom and play them in peace and quiet on your computer. Yes, thanks to Leisure Genius, you can now play *Monopoly, Cluedo* and *Scrabble* on your own. Each is available separately, but we thought we would review them together to save a bit of space.

Perhaps one of the greatest board games ever, Monopoly is a real let down as a game. Graphically it is quite abysmal and is enough to send any player rummaging through the cupboard to find that long lost box with the small green plastic houses and tatty bank notes. The only sound effects that I like to hear in a game of Monopoly are the cries of joy from the owner of Mayfair who is suddenly due £4,000 from the unfortunate player who has just landed on it. I do not expect nasty plinks and plonks intended to represent the rolling of the dice.

The current position of each player, of which there can be up to six – either computer controlled or otherwise – scrolls laboriously and jerkily along the bottom of the screen. The players representative figure, boot or top hat, ship or whatever, moves around the 3D-board above. The whole game is just too slow.





One of my favourite board games is Scrabble, but not against a computer. Unfortunately I'm now so good that nobody will ever take up the challenge so a computer version seems rather appealing. The board is exactly the same as in the boxed family game although is rather smaller and you must remember what each coloured square represents. It is much better and far more enjoyable than Monopoly. The computer puts up one hell of a fight and sometimes comes up with strange words that had me flicking the pages of the second volume of the Oxford Pocket Dictionary.

Tudor Close is the setting for the murder of poor old Dr. Black. Six persons could be the villain, but which one? That is your quest in the computer version of Waddington's Cluedo, the homocide detective game in which nobody knows who the killer is, not even the killer, until the mystery has been solved and a winner declared.

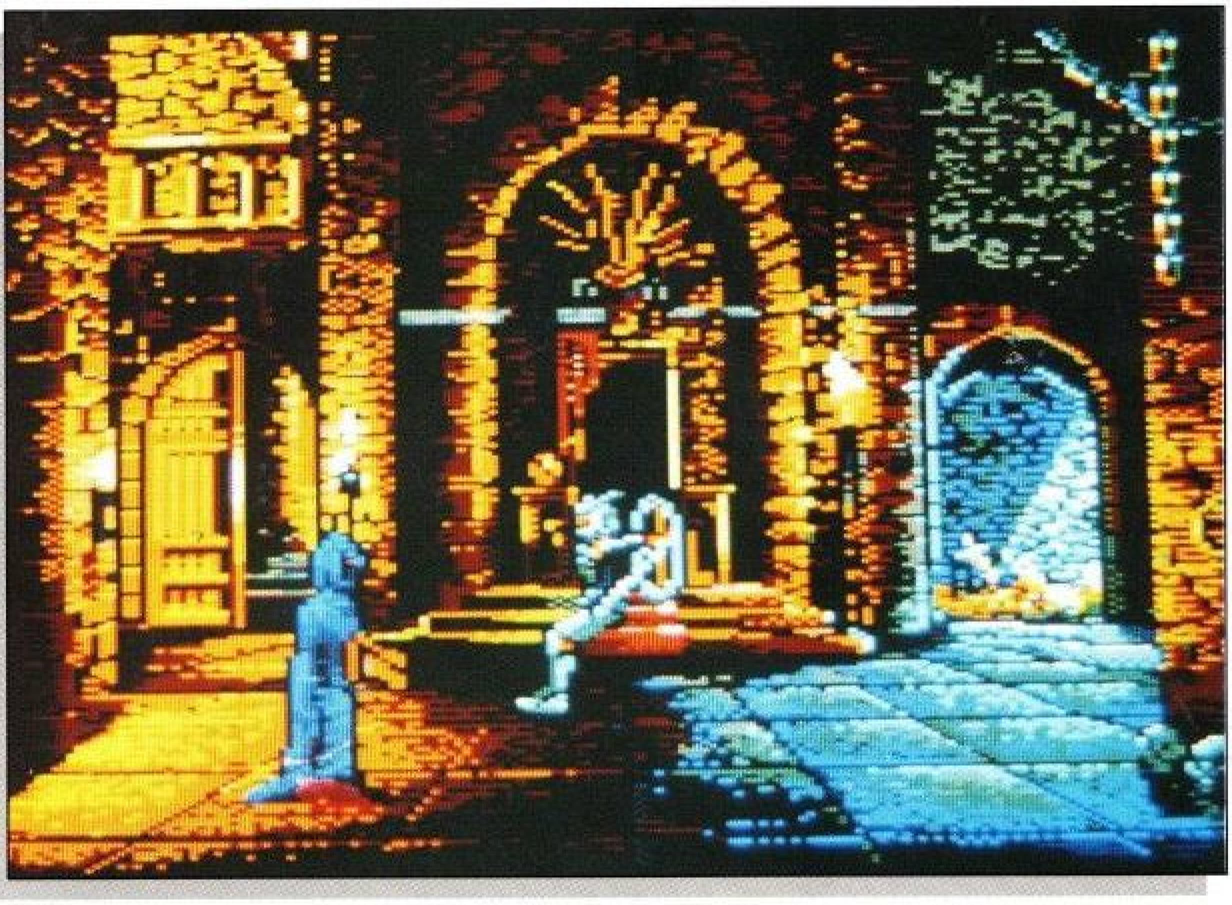
Cludeo comes complete with a small pad for keeping track of proceedings. The screen slowly draws the board of Cluedo with the various rooms in the ground floor of Tudor Close. Playing the game is quite easy using the various menus, but much of the game is lost because few people will be playing and most characters will be computer controlled.

The idea of playing such games against a computer opponent is quite appealing if you have no friends to play the board game with. However, the excitement is mostly lost as there is no player interaction and the urge to thump the computer is not as great as it is when you are playing against a smarmy pal.

The best of these three games is Scrabble. It is often played by two people but almost as though it were a solitary game as all concentration is focused on the game. Right Mr CPC, SQUEEZED on a triple word score, that's 156 points to me, I think. Beat that, if you can.

Andrew Banner

ROUND-UP			
NAME	Gamespack		
SUPPLIER	Leisure Genius	PRICE	£19.99
60%	61%	69%	70%
GRAFFIX	SONIX	PLAYABILITY	OVERALL



Knight Force

Take on robots and ninjas as you travel through time to save the Princess Tanya.



A long, long time ago, there lived a small earthworm called Martin. Martin lived a quiet life, never troubled anyone, and dug around in the earth quite happily until one day something happened to change his life completely. Red Sabbath, a wizard with little imagination and dirty robes was running through the forest with Princess Tanya under his arm. Martin saw the evil wizard heading his way with the princess, and intuitively realised that he was going to hold the Princess prisoner in the hope of capturing Fair Storm, the keyholder of the gates to time and space. Anger rose up through Martin, he uncoiled himself, drew himself up to his full height, and prepared to strike down the nefarious wizard. Alas Red Sabbath didn't see him at all and squashed poor Martin as he ran past.

So, taking the part of Fair Storm, you must rescue the distressed Princess and avenge poor Martin, the crushed earthworm.

As the knight in shining tin plate, you must brave four time zones, defeat all the monsters in each zone, and confront the wizard at the end of them. The wizard has of course cloned himself, and represents the ultimate challenge. Four times.

The time zones can be attempted in any order, and represent neolithic, mystic, New York and the future. All the monsters in each level have to be killed by a manful sword thrust to the nether regions, and various amulets collected in order to become strong enough to withstand the monsters further on.

Not that there is much further on. Each time zone has about three screens before you get to the wizard's castle. To hold you up in this very short quest, the monsters are very tough, and your sword is apparently very blunt.

In neolithic times there are beasts and skeletons, in mystic there's dwarves and holes, there's a ninja woman in New York, and a robot and demonic springs in the future.

The graphics for all these, and especially the backgrounds, are excellent, some of the best to grace a CPC in fact, and the dragon on the high score table will have you dying to see it.

The trouble with the game is that there is very little of it, and it's very hard as a result. Endless whacks with a sword at the monsters is about as effective as trying to brain them with a feather duster.

Er, well, that's it. Fabby graphics but not a great deal of gameplay. Knight Force is something of a homage to the eighties, all style and no content.

Mark Luckham

ROUND-UP			
NAME	Knight Force		
SUPPLIER	Titus	PRICE	£9.99
95%	55%	65%	72%
GRAFFIX	SONIX	PLAYABILITY	OVERALL



Assault Course

Waggle your way through the pain barrier as you battle to beat your best.

Wipe that stray thought out of your mind, we'll have no thinking here. You're in the army now lad. And so pass all great thinkers from profound theories to monotonous drilling on the assault course.

Alas poor you, the thought you could have done without, (and nearly always did), but all this exercise can't possibly be good for your health. Once more the dulcet tones of the sergeant direct you towards the assault course and the pain begins. This game reaches new heights of realism as you feel all the pain the assault course bound character feels – yes, this is a joystick waggler to beat all other wagglers.



You stand on the start line, nerves and muscles straining for the off, and away you go.

It is not a case of waggling so fast that your joystick melts but a constant waggle to get those legs pumping. The first obstacle you hit head on (literally if you forget to jump) is the wall. A fair turn of speed is needed to mount this obstacle combined with a well timed jump. Over the first hurdle and it is another standing start from the base of the wall. Building up a good head of steam at this stage of the game is essential for two reasons. One, you are competing against the clock and two, those nasty little water jumps take a lot of clearing.

Having gained your footing and muddied your boots, you rev up the stick for the serious obstacles. Crossing the rope over the water requires some serious sweat. Fall below the purple bend on the speedometer and you will take a dive. About now your arm will resemble a piece of lead tubing but you can't give up now, you're almost half way there.

The log presents a different form of challenge as speed is now fatal; your step must be slow and constant. The final obstacle between you and the next course is the rope swing. You must attack this obstacle at speed as you leap for the rope but your problems do not end here as a timed release is essential.

All the stops are out as you speed across the finishing line. After checking your now defunct arm, you steal a glance at the timer. If you complete the first course in under one minute and twenty five seconds the next challenge awaits but if you fail you lose one of your three lives and restart the course. Restarting a course is brain numbing as well as arm numbing.

The second assault course is a different colour but essentially the same. The obstacles are now familiar but their placing and number vary from that of the first course.

Nobody ever said life in the army was easy but if you enjoy pain and have a few spare joysticks to burn then go for it – you never know, you may get to like it. Even if you don't, it's character building, and it'll make a man of you, my son.

Adrian Pumphrey

ROUND-UP			
NAME	Assault Course		
SUPPLIER	Players Premier	PRICE	Cassette £2.99
76%	57%	72%	70%
GRAFFIX	SONIX	PLAYABILITY	OVERALL

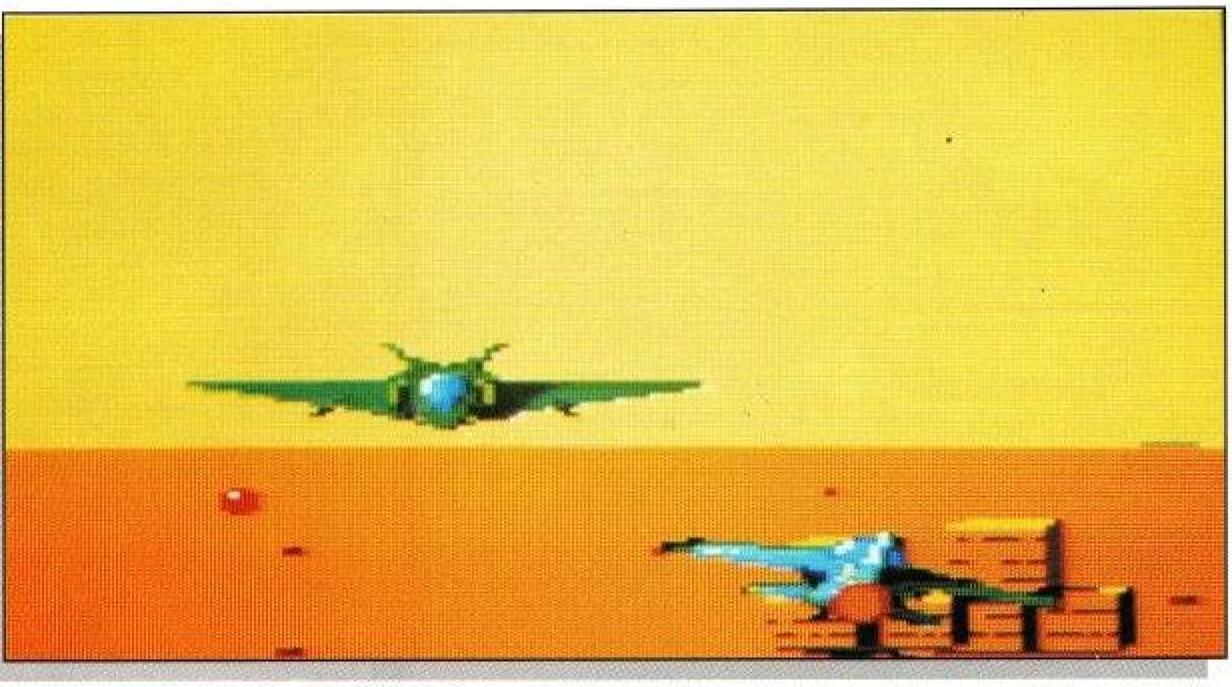


MiG Busters

Strap yourself in, grab the joystick and clear the skies of the Red menace.

Strap yourself into the cockpit of the latest airborne piece of hardware to ever kick Russian ass. Take to the skies from a US airfield and feed them red suckers some lead. Clear out a sector and, instead of a rest, you get reassigned to another sector, and a chance to gun for some more Rusky.

Yes, well, not exactly the deepest game I've ever reviewed, and unfortunately not the best either. *MiG Busters* is set in true *Afterburner* fashion, 3-D from behind the plane so that you can't see properly because the bottom of your plane is in front of you. Lots of planes, and tanks on the ground, a horizon which rises and falls, and the odd helicopter growing bigger in a blobby fashion. The planes and choppers are armed with machine guns which are pretty innocuous, and missiles, which are quite unpleasant. Well I've always found a missile up the jacksie quite unpleasant anyway.



Initial armament in this mindless exercise is the old machine gun, but after a successful mission further weaponry becomes available. Sidewinders, heavy duty cannons and other instruments of moderate-sized destruction come into play automatically. You aren't even given credit for having enough skill to change between weapons. If you have an extra weapon fitted, as soon as an enemy vehicle comes within range of a wobbling sight, whoosh, or ratatatata. Killing by proxy.

Naturally you need to replenish your bullet supply during a mission, otherwise you'll be hurling curses and scant else. Littered around the ground are crates of ammunition, which also blow up if you shoot them. Simply fly at the minimum height and run into the crates. Strange, but I've never seen this happen at Biggin Hill.

You can't actually fly into the ground, and there isn't any scenery to run into. Obviously this is a mission out in the endless brown plains, and then the endless white plains, and then the . . . You get the idea, it's all pretty endless.

Neither can you fly high enough to reach cloud level. You don't land or take-off yourself, it's all automatic, and shooting is a matter of guesswork and moving around a lot. In other words there's not a lot of scenery, and not a lot of gameplay.

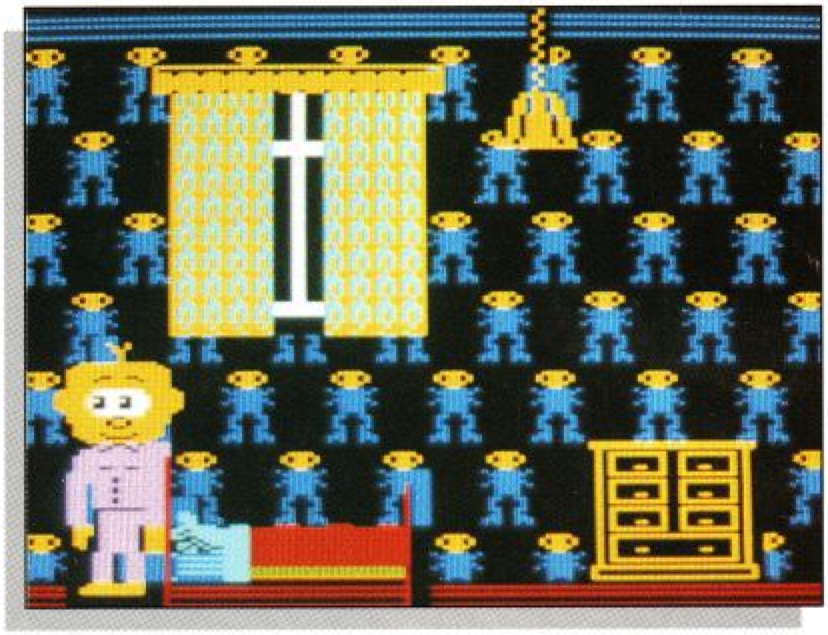
MiG Busters bears a horrible resemblance to a Codemasters release, MiG 29, which had much better graphics, weapons, scenery, and gameplay. And it was a budget release as well, so go buy that rather than this piece of terminally dull blob blasting.

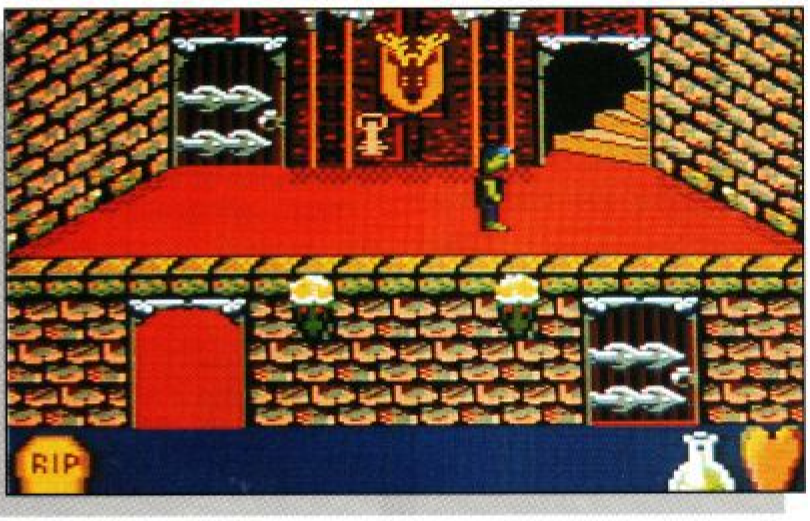
Mark Luckham

ROUND-UP			
NAME	MiG Busters		
SUPPLIER	Interceptor	PRICE	£2.99 (Cassette)
59%	45%	61%	52%
GRAFFIX	SONIX	PLAYABILITY	OVERALL

Budget Basement

We guide you through a selection of the month's budget releases, selecting the wheat from the chaff.



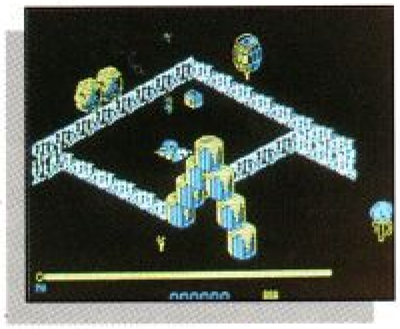


FRANKENSTEIN JNR.

Quite a weird and wonderful offering on Code Master's new Cartoon Time label is this one.

Frankenstein the monster has had the ultimate misfortune of being chopped to pieces. As his beloved son, your task is to battle your way past ghoulies and ghosties and pick up various bits of body to rebuild good old dad.

Excellent graphics, for a budget offering, and very playable, although walking through doorways is tricky at first – if you're not careful you'll find yourself back where you started. Try a few test runs first to find out where the Sanctuary is, because these ghosts are fast and they'll scare you to death.



ELVEN WARRIOR

The action isn't mindblowingly fast but there's enough of it to keep you busy.

Your quest is to find four bottles filled with magic potion which are scattered around the underground labyrinth and take them to their corresponding cauldrons. Does that sound simple enough? Well, unfortunately it's not that easy. Scrolling is so-so and it could be a tad more colourful, but the tantalising glimpse of the bottles when you enter the labyrinth is enough to keep you coming back for more in your quest for immortality.

SHARK

No, it's not a revamp of Jaws 399, but another daring Players mission to save the world from the evil Snake brothers, Jim and Quinton.

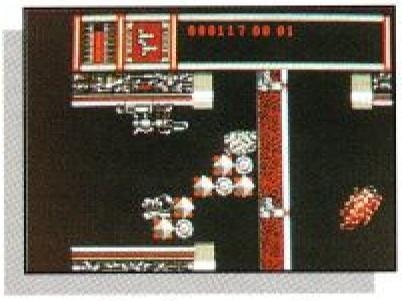
The action is fast and furious as you pilot the prototype submersible Shark through the alien infested tunnels of the secret undersea base, Atlantic 5.

As normal in Players alien encounters, contact with the enemy will drain your powers and before long you'll be wishing you had infinite lives – there certainly are a lot of baddies. It's fun, but make sure you know which brother you are – there seem to be a fair few of other odd looking characters floating around.

3DC

Another watery adventure, but this time you're on your own. No plasma blasters or grenades, just sub-aqua gear and a friendly eel to keep you company.

You find yourself stranded on a strange stretch of sea bed – how or why you came to be there is quite beside the point – and your only means of escape is to find and construct parts of a submarine using various tools strewn about the floor.



A little more colour wouldn't go amiss, and I can think of better things to do than traipse around the sea-bed all day, but then, I suppose the sooner you can build your submarine, the quicker you can get out of your watery grave and the sooner you can move on to another game on Terra Firma..

GREGORY LOSES HIS CLOCK

Gregory loses his marbles more like! If a ghost came along while I was asleep and stole my alarm clock, I know what I'd do. Forget work tomorrow – he's welcome to the darn thing.

But alas Gregory is made of sterner stuff, so off you go into the world of dreams to eat jumping beans, leap through jungles, puzzle in art galleries and blast through battlefields – all because Gregory loves his clock.

Interesting scenario, what? Never mind, it's a fun game with plenty of colour and battling to find the clock pieces and get back to bed before morning, should keep you occupied for a few hours.

Chris Knight

ROUND-UP

NAME	SUPPLIER	PRICE	RATING
Frankenstein Jnr	Cartoon Time	£2.99	84%
Elven Warrior	Players	£2.99	76%
Shark	Players	£2.99	72%
3DC	Encore	£2.99	54%
Gregory loses his clock	Mastertronic	£2.99	63%

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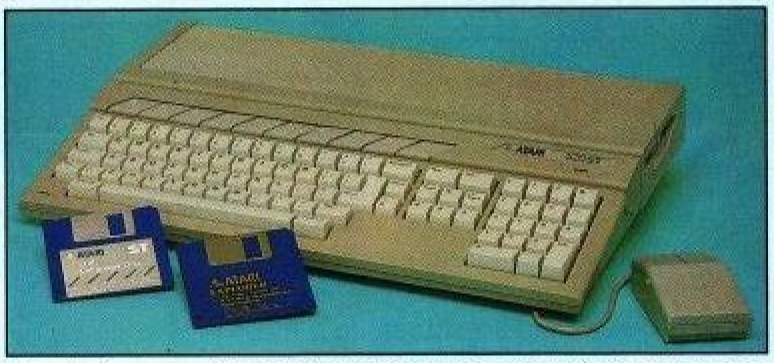
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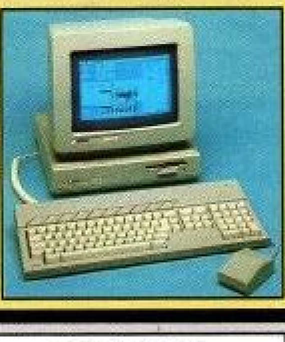
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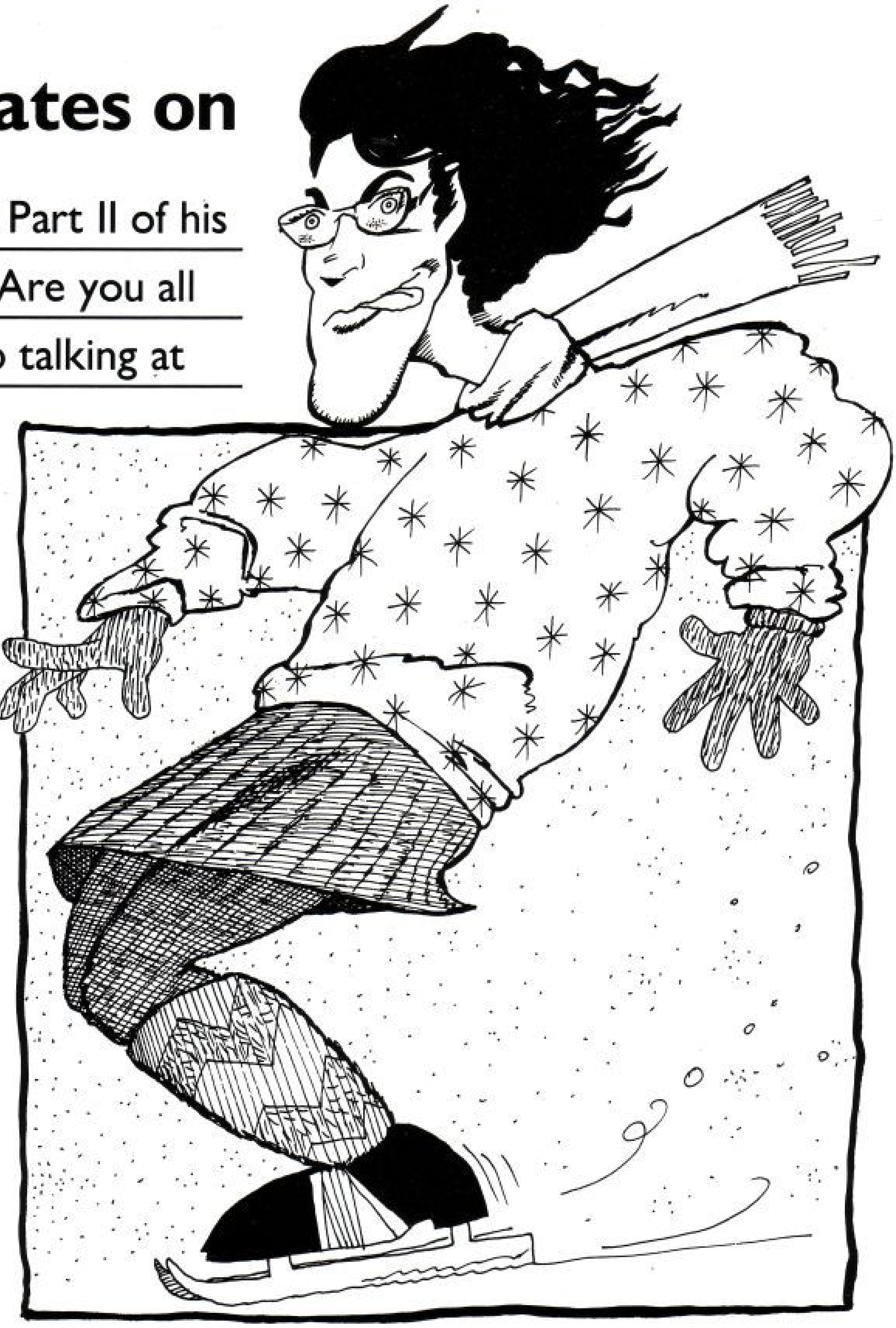
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Get your skates on



John Kennedy presents Part II of his machine code tutorial. Are you all sitting comfortably? No talking at the back. Good, then we shall begin.

So here is our first machine code instruction. First we will express it in 'mnemonics', which are a cross between English, Basic and gobbledegook. A mnemonic is simply an expression of the machine code in a form other than a number, in a futile attempt to make things easier to remember. Each mnemonic translates directly to a machine code number. The Z80 could not directly understand a mnemonic any more than it could understand a Basic command, and so we must translate these into their machine code counterparts before we can enter them into memory. We could spend lots of money and buy a program which would do this for us; they are called Assemblers, and cost at least as much as two Pink Floyd albums on CD. I know which I would rather have. And I do not even have a CD player.

The mnemonic LD A,21 places the value into one of the registers, the A register, which is better known as the Accumulator. In Basic, this would be equivalent to LET A=21. The 'LD' is short for 'LOAD' and so the instruction would be read as 'Load A with the value twenty-one'.

The Z80 code for the 'Load A with . . .' instruction is &3E (which is 62 in decimal). The number to be loaded into A must follow the instruction immediately, so if address &8000 contains &3E, then &8001 must contain twenty-one. Remember that the number must be in the range 0 to 255 as only a single byte is involved.

A more advanced instruction allows use of a similar facility to Basic's 'PEEK' command.

The mnemonic uses brackets to mean 'the contents of'. Thus, LD A,(&9000) means 'Load A with THE CONTENTS OF &9000'. In Basic this would be: LET A=PEEK(&9000).

The code number for this instruction is &3A. The address to be 'peeked' must follow directly afterwards. If only a single byte value from 0 to 255 was allowed for the address, the possible number of memory locations capable of being 'peeked' would be very small indeed. Instead we use two byte values linked together to provide a much larger range. The address has been split into two byte values, this means into two groups of two digits. But there is a twist: the two bytes are listed in reverse order. This may seem completely confusing, stupid, silly and pointless. And indeed, it may be so, but humour me. Therefore, it comes to pass that the code for the above mnenonic is &3A &00 &90.

Doing a 'poke' is easy: LD (&9000),A
or 'Load the contents of address &9000 with the value of A', and which in Basic is: POKE &9010,A

The code number is &32, and the above is therefore: &32 &10 &90. Remember that addresses are listed sdrawkcab!

Note: The use of hex address &9000 for our poking and peeking examples is totally arbitrary. However, if you are experimenting please keep to addresses around this area. Poking an address vastly different could change a vital area of memory, and as a result the computer would hang-up or crash. No damage will be done, except that you will have to switch off and start again. Worse than an immediate crash

is one where you poke a strange value and nothing happens. For the moment, that is.

Our First Program. Here is a short program to transfer a byte from one part of memory to another:

Mnemonics	Basic Equivilent	Code
LD A,(&9000)	10 LET A=PEEK(&9000)	&3A &00 &90
LD (&9001),A	20 POKE &9001,A	&32 &01 &90

It takes the byte held in address &9000 and copies it into the accumulator. Next the memory at address &9001 is changed to contain a copy of this value. At the end of the program, both memory addresses and the accumulator all contain the value that was on the first memory address. But do not take my word for it, run the program!

A Basic program to POKE all the data into memory is given below. You can type it in directly and run it.

Listing 1 – Excitement and really wild things.

```
5 MEMORY &7FFF: REM First
reserve some space for
the code
10 LET ADD=&8000
20 READ X$:X=VAL("&"+X$)
30 IF X="-1" THEN STOP
40 POKE ADD,X
50 LET ADD=ADD+1
60 GOTO 20
70 DATA &3A,&00,&90,&32,
&01,&90,&C9,-1
```

The more observant ones among you will notice an extra instruction included in the data list. It is the code &C9 which has the mnemonic 'RET', short for 'RETURN'. When your machine code program reaches this instruction, it will 'RETurn' to Basic. If you leave it out, your program will carry on trying to decode and execute memory as though it were a program, and as a result something nasty may occur, such as a crash. If this happens, your only recourse is to switch off and start again. Moral: remember to put a RET statement in.

So once the program has been RUN, what happens? Well, nothing. Although the program is now in memory, the Z80 has not been told to start executing it. To do that, we use the Basic word 'CALL', like this: CALL &8000. And once this is typed, the program will run, do its business and return to Basic. The net result is that, once again, nothing will have seemed to have happened. So what was all the excitement about? Is machine code a giant con? Well, let us give the program something to work at.

Put the number 42 into memory location &9000, with a POKE: POKE &9000,42. Now type PRINT PEEK (&9000). The number displayed is 42, is it not? Good, because we just put it there. However, we did not put it at address &9001, which you can check with a PRINT PEEK (&9001).

Now type CALL &8000. Okay, so now type PRINT PEEK (&901). And hey! Your value of 42 has been moved! Bravo! Your first machine code program – and it worked!

More Advanced Programs. Here is a new instruction: INC A. It stands for 'Increment the A register' and has the code value &3C. It increases the value of the A register by one.

In Basic this would be let A=A=1.

If a program consists of the following,

LD A,10
INC A
RET

by the time the RET statement is reached, A will contain the value 11.

Another instruction DEC A, or 'decrement A', will subtract one from A, like this: LET A=A−1.

So if a program read like this:

LD A,10
INC A
DEC A
DEC A
RET

. . . then at the end of the program, A would contain the value 9. It has been increased to 11, then decreased twice to 9. The code for 'DEC A' is &3D.

The Second Program. Here is a program to read a value from a memory location, increase it by one and return it, *to the same location.*

LD A,(&9000)
INC A
LD (&9000),A
RET

In Basic this would be:

10 LET A−PEEK (&9000)
20 LET A−A+1
30 POKE &9000,A
40 STOP

The complete Basic program to enter the code is given below. You can see that with the exception of the data the program is exactly the same, so that you can simply retype line 70 of listing 1. That is what I did.

Listing 2 – More excitement and really wild things.

```
5 MEMORY &7FFF
10 LET ADD=&8000
20 READ X$:X=VAL("&"+X$)
30 IF X="-1" THEN STOP
40 POKE ADD,X
50 LET ADD=ADD+1
60 GOTO 20
70 DATA &3A,&00,&90,&3C,&32,
&00,&90,&c9,-1
```

Once you have entered and RUN this Basic program, try it out with the following: POKE &9000,10 CALL &8000 PRINT PEEK (&9000). You should get the number 11 printed on the screen. Now try the following:

POKE &9000,255
CALL &8000
PRINT PEEK (&9000)

What do you think will be printed, and why?

Summary. Machine is faster but slightly more tricky than Basic. If you think it will help you can think of the memory of a nice jovial chap with a beard and a penchant for numbers in the range 0 to 255. The Z80 has a specific set of instructions, and a set of registers which also have a penchant for numbers in the range 0 to 255.

I lied about the CD, player, I do have one.

(RET is a bit like RETURN from a GOSUB, but we will look at it in detail later – just make sure you put it in for the moment!).

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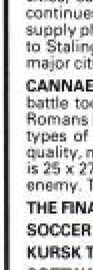
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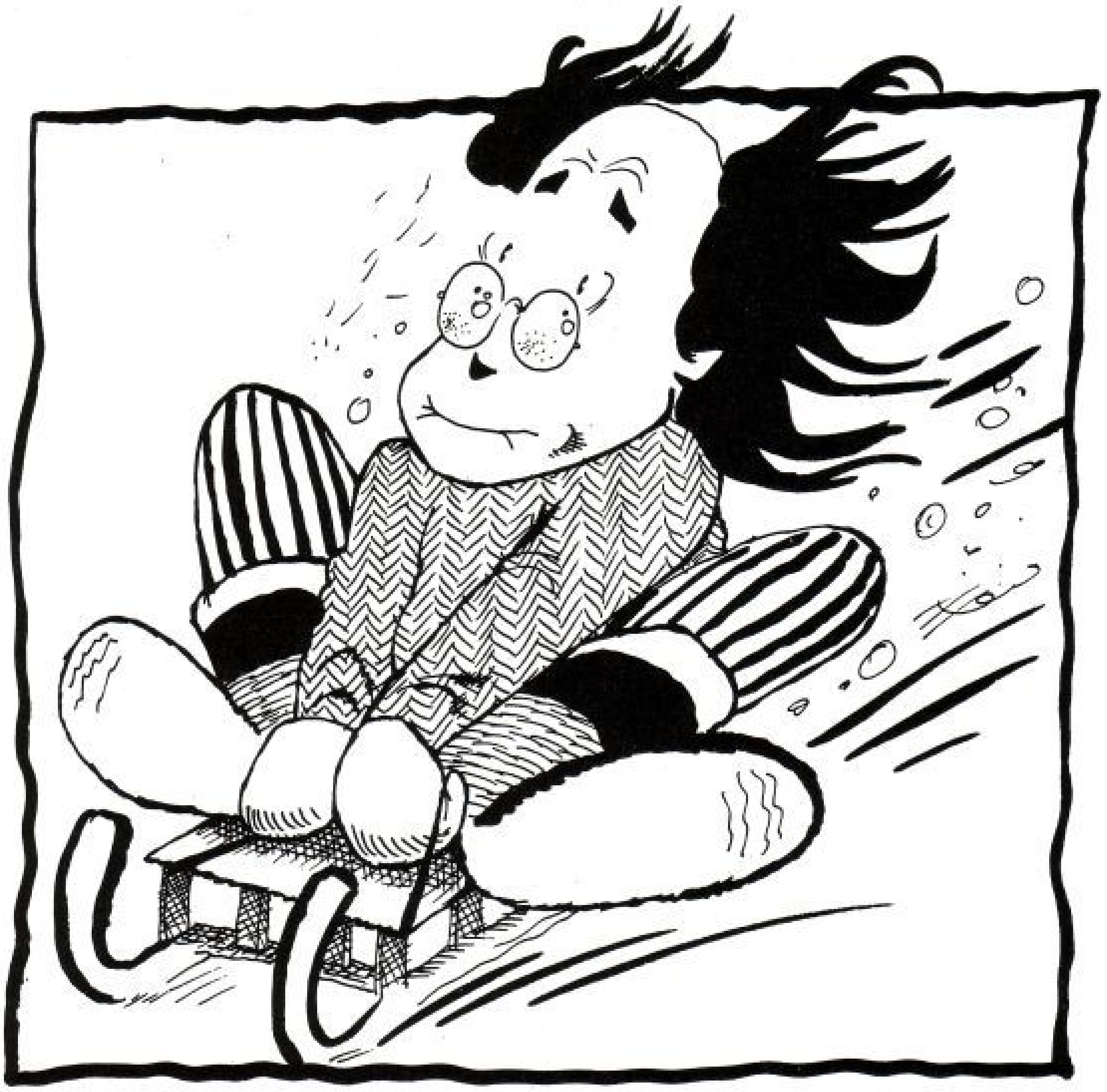
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Doing the timewarp

David Dorn's been busy sorting out more of your problems. This month, a problematic CP/M disc and a dodgy printer.



As I sit at my desk, clattering away at this month's Applications Advice, Christmas has still to dawn. Yet strangely as you are actually reading this, all the festive song and dance will have become just another anti-climactic winter memory. However, the fact that it is before Christmas in this particular timewarp may explain why the post-bag has not bulged quite as much as usual with this month's queries.

Nonetheless, there have been some interesting problems for us to get our teeth into, and a topic or two for general discussion. First out of the bag this month is a letter from J. M. Frohmaier, who resides in Caythorpe in Lancashire. He says:

"I read with interest your excellent article in the October Issue of ACU in which you offered sound advice to Mr Carmichael of Dyfed. Could you please advise me on a problem concerning 24-dot printers?"

Now, with such effusive praise as that, how could I possibly refuse? Carry on, Mr Frohmaier:

"I have owned my 6128 computer and DMP2000 printer for approximately three years and have recently added a 256k DK' Tronics memory expansion so as to get full use from my Info-Script software package. My problem is that I wish to update my printer to a 24-dot machine. Making enquiries from my local computer shop left me with the impression that software must be 24-dot supportive before it can be used with these machines. I understand Info-Script does support a 24-dot printer but can you advise me if the following software does: *Mini Office II, Planit*, advanced *Art Studio, Atlast Plus.*

"One other query: with my 6128 set up with its expansion memory pack, can I add the 800k 32" extra disc drive, along with its associated RODOS operating system?"

Right, let us take things one step at a time on this one. Firstly, a 24-pin printer's compatibility with the CPC. It largely depends on what you want to do with it, but, like most printers, 24-pin jobs will work very well with any machine in text mode. The problems may arise when you want to use an application that uses graphics output to print, rather than straight ASCII and control codes for effecting the text.

The reasons are quite simple. Nine pin printers use a dot–line width (and micro line feed) of 1/216th inch, whereas 24-pin jobs (at least at the cheaper end of the market) tend to use 1/180th as their smallest line feed.

This ends up leaving tiny lines between dot lines printed, and also makes the final printout look elongated from top to bottom. It is nothing much, but it does spoil the output.

So, with this in mind, I can offer the following in answer to your first query. Certain bits of MO II will be okay with a 24-pin printer, but certainly not the graph drawing options (unless, by serendipitous fortune, the elliptical circles that it normally outputs get stretched across the short diameter, and become circular again, and there really is not much chance of that!).

Planit, if it uses pure text output (and that includes the extended IBM graphics line drawing set) will be okay, but you have little chance of getting Art Studio running straight from the box – the printer drivers will have to be fiddled with (unless someone knows better, of course – if you have managed it, write in and let us know).

Atlast Plus ought to be all right, and should present no problems. The great thing about a 24-pin, of course, is that the text in NLQ (Near Letter Quality) is nearly always good enough for pretty important correspondence. For the best possible, though, a machine like the £700 Star XB24–10 that I have been reviewing for my own magazine (PC Base, on Micronet) can give an effective 48-pin resolution from its 24 pins, and its LQ modes are particularly nice to read. It is a lot of money to spend on a printer for a CPC, though.

Now, to your second query – big drives, memory packs, and RODOS. I

assume you are referring to the Siren Software 800k drive, which comes with either ROMDOS or RODOS (or you may wish to specify RAMDOS). If you get confused between the two different systems, it is understandable – many people do. There are advantages and disadvantages to both systems. RODOS, which comes from ROmantic RObot, offers a greatly improved directory structure. This is more or less like a tree, in which you have a root directory, and directories branching off that. From 'branch' directories, you may have 'twig' directories, and so on. A typical structure might look like figure 1.

On the other hand, actually formatting a disc under Rodos, for a fist-time user, can be a bit daunting. Without the extensions disc, it is a lot to get to grips with. With the extensions disc, it can be a pleasure to use.

My own preference is for KDS' RAMDOS and ROMDOS. Both are the same, save that ROMDOS, as its name implies, is held in ROM, whilst RAMDOS is on disc. Both can be used with CP/M Plus, something that RODOS cannot claim, but both lack the better directory structure. In the end, you have to decide whether you will want to use CP/M Plus with a larger drive, in which case, you have no choice – it has to be ROM- or RAM-DOS. If CP/M usage isn't an issue, the RODOS has a lot going for it.

Either way, you should have no problems with your memory expansion, unless your CPC's monitor has a particularly weak power supply, in which case you may find one or more of your roms fail to work. It is unlikely that this will be the case, though, so enjoy working with bigger (and to my mind more sensibly sized) discs, and reap in the cash savings!

Dawson's up

Next up is Mr R. Dawson (we're all very formal this month – whatever happened to Christian names?), who hails from Hinckley in Leicestershire (I do love the way the Americans pronounce that). He writes:

'I am an OAP, and I got my computer to keep my mind occupied. I thought I was getting along fine, till I sent away for a MAXAM disc, which I had to send back, and which the company (ARNOR) was good enough to change for me. But, the same thing happened – READ Fail!

"I have loaded the Digital disc (CP/M) first, then the Maxam, following the instructions in the manual, but still the same things happen. I would like to know whether I could have my CP/M disc checked, and if not, could you tell me how to get a replacement, also the price and the address.'

I have omitted the last paragraph out of modesty, Mr Dawson, but thanks for the compliment anyway!

A READ Fail suggests to me that it is probably the Maxam disc that is at fault, but to narrow this down to a 'better than chance' diagnosis, and also to give an example in troubleshooting, this is what you need to do.

First, to check out the CP/M disc (which you refer to as your 'Digital') disc. From a freshly switched-on machine, insert a copy of the CP/M disc (you are using a backup, I hope!), and type 'CPM'. All things being equal, you should see the sign-on message at the top of your screen (as shown in the CPC Manual). So far so good. If you don't see the sign-on message, then your CP/M disc is at fault, and you should get your original out, and make another working disc. This is why you should always work from a backup disc.

Assuming you have got the right sign-on, the next thing to do is to run one of the applications on the CP/M disc itself. Which one you choose is unimportant, but 'DISCKIT3' is a good one to choose, as you will already know that quite well. If that runs without any problems, then the likelihood is that it is not your CP/M disc that is at fault.

The next stage is to narrow down all the possibilities with your Maxam program disc. Keeping Disckit loaded, write protect the original Maxam disc. Next, copy the disc under disckit to a new disc – it is this one that we will work with.

If Disckit fails to copy the original Maxam disc, then you can assume that Maxam is the faulty link in the chain. If it does manage the copy, then I can only think of one or two other possibilities. The first of these is that you have got Maxam for Amsdos, not Maxam 2 for CP/M.

If that is the case, then CP/M should still be able to read the disc, but return with a question mark, which tells you that it cannot find the command or file you have told it to look for when you type 'MAXAM'.

If you have got this far, and have Maxam 2, and the Maxam disc seems to be the one at fault, then you should get in touch with Arnor, and tell them exactly what has been happening.

If it turns out that it is your CP/M master disc which is giving the problems, then a phone call to Amstrad Customer Services is in order. They will advise you of the steps to take to get your master disc replaced. Contact them on 0277 228888, and have the serial number of your CP/M master disc handy.

Once you have got whichever one proves to be the problem replaced, be absolutely certain that you only ever work from backups, never the original discs. I speak from bitter experience, having either wrecked, or having had wrecked, a fair number of original discs in my time. Thankfully, I have always had the habit of making a backup of any disc that arrives in my hot sweaty little mitts as soon as possible after I get it.

Thus, even when it has been the master that I have wrecked, I have had the necessary files to be able to reconstruct it. Whichever way you go about, always back up, and if the program you have bought is protected, do what I do – take it back, and ask for a refund. I have never believed any firm that tells me that there is no need to do that, 'because we're going to be here for a long time, and you can get a replacement disc any time.' It is a different story three years later when your favourite disc has just gone down the tubes, and the firm has either gone bust, or no longer supports the application, game, or whatever in question.

That, of course, is why copying programs is so popular!

An old friend

Now, to a letter from an old friend of this column, from way before I ever became involved in it, would you believe! Jim Sedgewick has dropped me a note asking whether 'my predecessor' David Foster or I had managed to come up with the fixes for four programs produced for the CPC when the DMP 1 was Amstrad's only printer. (My goodness, that seems light years ago – I cannot even picture what one looks like now!)

The four programs were configured to work with that printer, and the printer itself had some pretty peculiar

control codes attached to it. Jim has been in fairly regular contact about these four (in fact I remember reading the first letter from him all those years ago – makes me feel quite old!), and his note is a reminder for me.

Well, Jim, thanks for taking the trouble to write, but the news is not altogether brilliant. Both David F. and I have had the last of the four programs apart, and the construction is such that we cannot manage to untangle the code enough to re-write the printer-driver. The other three DID get covered ages ago when David was writing this column – I am sure you have got the back issues in question, and to be honest, I cannot remember which one it was in – but search your copies from around 18-20 months ago!

The problem is quite complex. The programs were initially written for tape, before the 664 was even a twinkle in Alan's eye, and so no account was taken of the disc OS. When they were subsequently re-worked for disc operation, a portion of the disc OS was moved up in memory, and pointers changed to divert system calls to where the code now lay. That is the simple explanation – the full story would make Vax lose his flowing mane with frustration.

In short, Jim, yes, we have both given up on the last one – I am afraid it is more bother than it is worth. I am sorry to have to say that, but there are priorities, and while I'd love to be able to provide you with a foolproof answer, time, as they say, has run out on that one!

Printer problems

From Ilford in Essex, Barry Bartlett writes with a printer problem, and one in which the troubleshooting process has been started. He has been given an old Centronics H80–2A printer, which he would like to interface to his 6128. He says he bought a lead, plugged it in, gave the print command, and.... nothing! The head moved a little, but the pins did not fire.

So, off to his local dealer he trotted, CPC and printer in tow, to start to get to the bottom of the problem. Into an Amstrad PPC (the portable PC compatible) went an IBM printer lead, and the other end slotted into the parallel port on the Centronics port on the printer.



The print command was given and... it worked! Next, the 6128 was rigged up to an Amstrad printer, with Barry's lead doing the connecting. The print command was given and... it worked too! Put the Centronics H80, the lead, and the CPC together, though, and zippo, zilch, zero. No printing. No way.

Barry's dealer suggested that he contact Centronics direct, but Barry has not been able to get any joy there – they have either gone bust or have been taken over. I have had no luck in that direction either, Barry, so do not feel bad about it. Next, he contacted Amstrad who, in their wisdom, said they could only advise him on Amstrad printers – quite rightly, really.

Barry thinks that the problem may lie in the switches in the H80 not being correctly set, and is now at his wit's end – he has no manual to help him, and these things are bad enough WITH a manual, never mind playing with dip switches in the dark.

I've looked at data sheets for the standard parallel port connector (usually called a Centronics port), compared them with the Amstrad parallel port, and also the five printers I've got standing in my study at the moment. I've also connected my 6128 (both of them, in fact) to each of the printers in turn, as a double check, and have not needed to change any dip switches anywhere. So, I can only assume that the switches in your printer control more than the standard typefaces and page lengths that most printers need configuring for.

So, I'm stabbing in the dark as much as you are. However, I can suggest a course of action that may prove fruitful. If the problem lies in the dip switches, then you need to adopt a systematic approach to fiddling with them. Start with them all off, and try printing something. If that fails, put switch one to on, and try again. If that fails, put switch two to on, and so on. At the point where all of the switches are on (and I hope you don't need to get this far), put switch one to off, and follow the same course. If you get to the end of that series, start again, but with switch two set to on, with switch one set to off, and go from the highest switch number to the lowest, altering as you go.

If it is the dips that are at fault, you'll eventually find a combination that will get the printer online and printing. Once you've managed that, it's a matter of making a note of the orientation of the switches, so that you've got a reference to work from when experimenting with the others, to see what they do. A hint here is that, very often, the two highest dip switches are marked as 'reserved' in the manual, and should be left permanently on. That may be another good starting point.

So, this month's plea for help. I can get no info on this printer whatsoever, so I'd like to hear from anyone who has any experience of the thing at all. If anyone has a manual for the beast, so much the better, I'm sure that our esteemed editor won't mind photocopying the relevant pages for me to pass on to Barry, and at the same time let you all know what the solution to the problem is. I know I can rely on you, so, please, help out if you can!

And that just about wraps up the column for another month. While you have all had your Christmas, I'm off to write my letter to Santa – I want a Cray 2 this year, and a Colour Postscript printer that does 20 pages a minute, and a Roller to put them all in! Happy Easter!

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LISTING

ACCOUNTANCY

BY DAVID WELLER

It's a long listing I know, but well worth the effort once you get there. The program allows you to keep track of ten separate accounts at any one time, along with sales records and invoicing facilities. There's also a print option which makes it a very useful utility indeed. You could even use it to work out how much money your friends owe you!

```
10 MEMORY &9FFF:POKE &A000,&CD:POKE &A001,&60:POKE &A002,&BB:POKE &A003,&CD:POKE
 &A004,&2B:POKE &A005,&BD:POKE &A006,&C9
20 DIM num(12),date$(12),ac$(10),name$(10),vlgd(12,10),blfd(12,10),paid(12,10),r
ec(12),newb(12,10):REM RECORDS ARRAY
30 DIM sales(12,20),snum(12,20),catn$(12,20),gac$(12,20),gact(12,10):REM GOODS A
RRAY
40 DIM totp(12),totg(12),toto(12),totn(12):REM TOTALS ARRAY
50 DIM cot(12),camt(12),cclm(12),cnt(12):REM COMMISION ARRAY
60 DIM tol(12,10),tp(12,10),tg(12,10):REM saves corrupting other variables
70 st=0
80 rec=0
90 num=0
100 cnt(0)=0
110 MODE 2:CLS
120 LOCATE 25,5:PRINT"DISPLAY STATEMENT";TAB(54)"D"
130 PRINT:PRINT TAB(25)"ADD NEW STATEMENT";TAB(54)"A"
140 PRINT:PRINT TAB(25)"GET RECORD DATA";TAB(54)"G"
150 PRINT:PRINT TAB(25)"WRITE RECORD DATA";TAB(54)"W"
160 PRINT:PRINT TAB(25)"PRINT STATEMENT";TAB(54)"P"
170 PRINT:PRINT TAB(25)"SET UP ACCOUNT";TAB(54)"F"
180 WHILE A$>"":A$=INKEY$:WEND
190 WHILE a$="":A$=INKEY$:WEND
200 option=INSTR("DAGWPF",UPPER$(A$))
210 ON option GOSUB 230,250,420,740,1060,1400
220 LOCATE 1,25:PRINT SPC(29)" SPACE to Continue ";SPC(29):WHILE a$<>" ":a$=INKE
Y$:WEND:PRINT CHR$(7):GOTO 110
230 CLS:LOCATE 20,3:INPUT"Statement Number required ",rec:IF rec<1 OR rec>12 THE
N GOTO 240 ELSE CLS:st=0:GOTO 1620
240 PRINT TAB(12)"Renter Number between 1 to 12 PRESS ANY KEY to continue":WHILE
 INKEY$="":a$=INKEY$:WEND:GOTO 230
250 rec=num+1:GOSUB 1620:GOSUB 1490
260 GOTO 1070
270  LOCATE 39,1:PRINT;rec:LOCATE 70,1:INPUT"",date$(rec):GOTO 340
280 CLS #1:PRINT #1:PRINT #1,TAB(12)"Have Goods been Sold Y/N":PRINT#1:PRINT #1,
TAB(8)"Any Key if you forgot to add sales"
290  a$=INKEY$:IF a$="" GOTO 290
300 IF a$="Y" OR a$="y" THEN 340
310 IF a$="N" OR a$="n" THEN 330
320 PRINT CHR$(7):GOTO 1070
330 CLS #1:LOCATE 15,20:PRINT"Enter Date":LOCATE 70,1:INPUT"",date$(rec)
340 CLS #1:FOR n=1 TO 10
350 LOCATE 33,(n+3):INPUT"",paid(rec,n):NEXT:GOSUB 1520
360 FOR n=1 TO 10:LOCATE 41,(n+3):PRINT USING "####.##";blfd(rec,n)+vlgd(rec,n)-
paid(rec,n):newb(rec,n)=blfd(rec,n)+vlgd(rec,n)-paid(rec,n):NEXT
370 num=rec:GOSUB 1540:LOCATE 1,25 :PRINT"To Claim Commission press (C):To Re-en
ter Paid (P):Any Other Key to Return"
380 a$=INKEY$:IF a$="" GOTO 380
390 IF a$="C" OR a$="c" GOTO 1330
400 IF a$="P" OR a$="p" GOTO 1930
410 PRINT CHR$(7):GOTO 110
420 CLS:PRINT:PRINT:PRINT TAB(30)"Retrieve            Y/N"
430 a$=INKEY$:IF a$="" THEN 430
440 IF a$="N" OR a$="n" THEN RETURN
450 IF a$="Y" OR a$="y" THEN 470
460 PRINT CHR$(7):RETURN
470 OPENIN"data"
480 INPUT#9,cnt(0)
490 INPUT#9,num
500 FOR n=1 TO 10:INPUT#9,newb(0,n):NEXT
510 FOR rec=1 TO 12
520 INPUT#9,date$(rec)
525 INPUT#9,toto(rec)
530 INPUT#9,totg(rec)
535 INPUT#9,totp(rec)
540 INPUT#9,cot(rec)
550 INPUT#9,camt(rec)
560 INPUT#9,cclm(rec)
570 INPUT#9,cnt(rec)
580 FOR n=1 TO 10
590 INPUT#9,ac$(n)
600 INPUT#9,name$(n)
610 INPUT#9,blfd(rec,n)
620 INPUT#9,vlgd(rec,n)
630 INPUT#9,paid(rec,n)
```

```
635 INPUT#9,newb(rec,n)
640 NEXT
650 FOR a=1 TO 20
660 INPUT#9,snum(rec,a)
670 INPUT#9,catn$(rec,a)
680 INPUT#9,gac$(rec,a)
690 INPUT#9,sales(rec,a)
700 NEXT
710 NEXT
720 CLOSEIN
730 RETURN
740 CLS:PRINT:PRINT:PRINT TAB(30)"Save                Y/N"
750 A$=INKEY$:IF A$="" GOTO 750
760 IF A$="N" OR A$="n" THEN 110
770 IF A$="Y" OR A$="y" THEN 790
780 PRINT CHR$(7):RETURN
790 SPEED WRITE 1:OPENOUT"data"
800 PRINT#9,USING"###.##";cnt(0)
810 PRINT#9,num
820 FOR n=1 TO 10:PRINT#9,USING"###.##";newb(0,n):NEXT
830 FOR rec=1 TO 12
840 PRINT#9,date$(rec)
845 PRINT#9,USING"####.##";toto(rec)
850 PRINT#9,USING"####.##";totg(rec)
855 PRINT#9,USING"####.##";totp(rec)
860 PRINT#9,USING"###.##";cot(rec)
870 PRINT#9,USING"###.##";camt(rec)
880 PRINT#9,USING"###.##";cclm(rec)
890 PRINT#9,USING"###.##";cnt(rec)
900 FOR n=1 TO 10
910 PRINT#9,ac$(n)
920 PRINT#9,name$(n)
930 PRINT#9,USING"###.##";blfd(rec,n)
940 PRINT#9,USING"###.##";vlgd(rec,n)
950 PRINT#9,USING"###.##";paid(rec,n)
955 PRINT#9,USING"###.##";newb(rec,n)
960 NEXT
970 FOR a=1 TO 20
980 PRINT#9,snum(rec,a)
990 PRINT#9,catn$(rec,a)
1000 PRINT#9,gac$(rec,a)
1010 PRINT#9,USING"###.##";sales(rec,a)
1020 NEXT
1030 NEXT
1040 CLOSEOUT
1050 RETURN
1060 CLS:LOCATE 27,3:INPUT"Statement Number to Print ",rec:st=8:GOTO 1620
1070 CLS #2:CLS #5
1075 CLS #1:PRINT #1,TAB(22)"OPTIONS"
1080 PRINT #1,TAB(5)"NEW SALES";TAB(44)"N"
1090 PRINT #1,TAB(5)"ERAZE SALES";TAB(44)"E"
1100 PRINT#1,TAB(5)"AMOUNT PAID ENTRY";TAB(44)"A"
1110 PRINT #1,TAB(5)"RETURN TO MAIN MENU"TAB(44)"R"
1120 WHILE a$>"":a$=INKEY$:WEND
1130 WHILE a$="": a$=INKEY$:WEND
1140 option=INSTR("NEAR",UPPER$(a$))
1150 ON option GOTO 1170,1260,280,110
1160 PRINT CHR$(7):GOTO 1075
1170 CLS #1:LOCATE 15,20:PRINT"Enter Date":LOCATE 70,1:INPUT"",date$(rec):CLS #1
:LOCATE 15,20:INPUT "Total Sold ",ts:CLS #1:LOCATE 5,19:PRINT"Enter Serial No:Ca
tologue No:Value:Acc No":GOTO 1190
1180 CLS #1:LOCATE 15,20:INPUT "Total Sold ",ts:CLS #1:LOCATE 5,19:PRINT"Enter S
erial No:Catologue No:Value:Acc No"
1190 LOCATE 7,21:PRINT"Remember to Press ENTER after Each No"
1200 FOR a=1 TO ts:LOCATE 53,a+3:INPUT"",snum(rec,a):LOCATE 61,a+3:INPUT"",catn$
(rec,a):LOCATE 69,a+3:INPUT "",sales(rec,a):LOCATE 77,a+3:INPUT"",gac$(rec,a):NE
XT
1210 FOR a=1 TO 20:FOR n=1 TO 10:IF gac$(rec,a)=ac$(n) THEN 1220 ELSE NEXT
1220 vlgd(rec,n)=sales(rec,a)+gact(rec,n):gact(rec,n)=vlgd(rec,n):NEXT
1230 FOR n=1 TO 10:LOCATE 24,n+3:PRINT USING"###.##";vlgd(rec,n):NEXT
1240 FOR n=1 TO 10:tg(rec,n)=vlgd(rec,n):tg(rec,n)=tg(rec,n-1)+tg(rec,n):NEXT:to
tg(rec)=tg(rec,n-1):LOCATE 23,15:PRINT USING"####.##";totg(rec)
1250 GOTO 1075
1260 CLS #1:PRINT #1,TAB(5)"Eraze Goods Statement Y/N"
1270 a$=INKEY$:IF a$="" GOTO 1270
1280 IF a$="Y" OR a$="y" THEN 1310
1290 IF a$="N" OR a$="n" THEN RETURN
1300 PRINT CHR$(7):RETURN
1310 CLS #2:CLS #4:LOCATE 20,15:PRINT SPC(30):FOR a=1 TO 20:snum(rec,a)=0:catn$(
rec,a)="":sales(rec,a)=0:gac$(rec,a)="":NEXT
1320 FOR n=1 TO 10:vlgd(rec,n)=0:gact(rec,n)=0:tg(rec,n)=0:NEXT:totg(rec)=0:GOTO
 1180
1330 CLS #1:PRINT #1,TAB(5)"Commission Balance Owing = #":LOCATE 35,17:PRINT USI
NG "###.##";cnt(rec):PRINT #1,TAB(15)"Claim Commission Y/N"
1340 a$=INKEY$:IF a$="" THEN 1340
1350 IF a$="Y" OR a$="y" THEN 1380
1360 IF a$="N" OR a$="n" THEN 110
1370 PRINT CHR$(7):RETURN
1380 LOCATE 18,19:INPUT "Amount Claim ",cclm(rec):cnt(rec)=cot(rec)+camt(rec)-cc
lm(rec):CLS #1:GOTO 1550
1390 REM rec=num
```

```
1400 MODE 1:CLS:PRINT:PRINT TAB(4)"Input Account Number and Name Y/N"
1410 A$=INKEY$: IF A$="" THEN 1410
1420 IF A$="Y" OR A$="y" THEN 1440
1430 IF A$="N" OR A$="n" GOTO 110
1440 CLS:PRINT TAB(9)"Fields for ten Accounts":PRINT"Up to TWO Characters for Ac
count Number":PRINT TAB(13)"Press *ENTER*":PRINT TAB(6)"Up to TEN Characters for
 Name":PRINT TAB(13)"Press *ENTER*":PRINT TAB(6)"Amount of Balance Outstanding"
1450 PRINT TAB(6)"For Blank Fields Press *ENTER*"
1460 FOR n=1 TO 10:LOCATE 1,9+(n):INPUT"Ac No ",ac$(n):LOCATE 10,9+(n):INPUT"Nam
e ",name$(n):LOCATE 26,9+(n):INPUT"Balance ",newb(0,n):NEXT:LOCATE 5,21:INPUT"Co
mmision Brought Forward ",cnt(0)
1470 PRINT:PRINT TAB(11)"SPACE to continue":WHILE INKEY$<>" " :WEND:GOTO 110
1480 LOCATE 35,1:PRINT "STATEMENT";rec:LOCATE 55,1:PRINT "DATE ";date$(rec)
1490 REM PRINT DATA
1500 FOR n=1 TO 10:blfd(rec,n)=newb(rec-1,n):LOCATE 15,(n+3):PRINT USING "###.##
";blfd(rec,n):NEXT
1510 FOR n=1 TO 10:tol(rec,n)=blfd(rec,n):tol(rec,n)=tol(rec,n-1)+tol(rec,n):NEX
T:toto(rec)=tol(rec,n-1):LOCATE 14,15:PRINT USING"####.##";toto(rec):RETURN

1520 FOR n=1 TO 10:tp(rec,n)=paid(rec,n):tp(rec,n)=tp(rec,n-1)+tp(rec,n):NEXT:to
tp(rec)=tp(rec,n-1):LOCATE 32,15:PRINT USING "####.##";totp(rec)
1530 LOCATE 41,15:PRINT USING "####.##";toto(rec)+totg(rec)-totp(rec)
1540 cot(rec)=cnt(rec-1):camt(rec)=totp(rec)/10:cnt(rec)=cot(rec)+camt(rec)-cclm
(rec)
1550 LOCATE 3,17:PRINT"COMMISSION THIS STATEMENT"
1560 LOCATE 4,18:PRINT"Previous Total":LOCATE 21,18:PRINT USING "###.##";cot(rec
)
1570 LOCATE 4,19:PRINT"This commission":LOCATE 21,19:PRINT USING "###.##";camt(r
ec)
1580 LOCATE 4,20:PRINT"Less Claimed":LOCATE 21,20:PRINT USING "###.##";cclm(rec)
1590 LOCATE 22,21:PRINT STRING$(5,"=")
1600 LOCATE 10,22:PRINT"New Total":LOCATE 21,22:PRINT USING "###.##";cnt(rec)
1610 st=0:RETURN
1620 CLS:MODE 2:PRINT TAB(22)"STATEMENT NUMBER ";rec;TAB(55)"GOODS";TAB(65)"DATE
 ";date$(rec)
1630 PRINT TAB(2)"Ac";TAB(5)"NAME";TAB(15)"OsBAL";TAB(24)"GOODS";TAB(33)"PAID";T
AB(41)"NEWBAL";TAB(53)"SNumber";TAB(61)"CNumber";TAB(69)"VALUE";TAB(77)"Ac"
1640 PRINT STRING$(79,"=")
1650 FOR n=1 TO 10:
1660 PRINT "|";ac$(n);TAB(5)name$(n):LOCATE 15,n+3:PRINT USING"###.##";blfd(rec,
n):LOCATE 24,n+3:PRINT USING"###.##";vlgd(rec,n):LOCATE 33,n+3:PRINT USING"###.#
#";paid(rec,n):LOCATE 41,n+3:PRINT USING"###.##";newb(rec,n)
1670 LOCATE 50,n+3:PRINT"||";TAB(53)snum(rec,n);TAB(61)catn$(rec,n):LOCATE 69,n+
3:PRINT USING"###.##";sales(rec,n):LOCATE 77,n+3:PRINT"";gac$(rec,n);TAB(79)"|"
1680 NEXT
1690 PRINT "|"+STRING$(48,"=")+"|";TAB(51)"| ";snum(rec,11);TAB(61)catn$(rec,11)
;TAB(69)USING"###.##";sales(rec,11):LOCATE 77,14:PRINT"";gac$(rec,11);TAB(79)"|"
1700 PRINT "|";TAB(3)"Totals";TAB(14)USING"####.##";toto(rec):LOCATE 23,15:PRINT
 USING"####.##";totg(rec):LOCATE 32,15:PRINT USING"####.##";totp(rec):LOCATE 40,
15:PRINT USING"####.##";toto(rec)+totg(rec)-totp(rec)
1710 LOCATE 50,15:PRINT"|| ";snum(rec,12);TAB(61)catn$(rec,12);TAB(69)USING"###.
##";sales(rec,12):LOCATE 77,15:PRINT"";gac$(rec,12);TAB(79)"|"
1720 PRINT "|"+STRING$(48,"=")+"|";TAB(51)"| ";snum(rec,13);TAB(61)catn$(rec,13)
;TAB(69)USING"###.##";sales(rec,13):LOCATE 77,16:PRINT"";gac$(rec,13);TAB(79)"|"
1730 PRINT "|";TAB(3)"COMMISION THIS STATEMENT";TAB(51)"| ";snum(rec,14);TAB(61)
catn$(rec,14);TAB(69)USING"###.##";sales(rec,14):LOCATE 77,17:PRINT"";gac$(rec,1
4);TAB(79)"|"
1740 PRINT "|";TAB(4)"Previous Total   ";USING"###.##";cot(rec):LOCATE 51,18:PRI
NT"| ";snum(rec,15);TAB(61)catn$(rec,15);TAB(69)USING"###.##";sales(rec,15):LOCA
TE 77,18:PRINT"";gac$(rec,15);TAB(79)"|"
1750 PRINT "|";TAB(4)"This Commission  ";USING"###.##";camt(rec):LOCATE 51,19:PR
INT"| ";snum(rec,16);TAB(61)catn$(rec,16);TAB(69)USING"###.##";sales(rec,16):LOC
ATE 77,19:PRINT"";gac$(rec,16);TAB(79)"|"
1760 PRINT "|";TAB(4)"Less Claimed     ";USING"###.##";cclm(rec):LOCATE 51,20:PR
INT"| ";snum(rec,17);TAB(61)catn$(rec,17);TAB(69)USING"###.##";sales(rec,17):LOC
ATE 77,20:PRINT"";gac$(rec,17);TAB(79)"|"
1770 PRINT "|";TAB(22)STRING$(5,"=");TAB(51)"| ";snum(rec,18);TAB(61)catn$(rec,1
8);TAB(69)USING"###.##";sales(rec,18):LOCATE 77,21:PRINT"";gac$(rec,18);TAB(79)"
|"
1780 PRINT "|";TAB(10)"New Total  ";USING"###.##";cnt(rec):LOCATE 51,22:PRINT"|
";snum(rec,19);TAB(61)catn$(rec,19);TAB(69)USING"###.##";sales(rec,19):LOCATE 77
,22:PRINT"";gac$(rec,18);TAB(79)"|"
1790 PRINT "|";TAB(51)"| ";snum(rec,20);TAB(61)catn$(rec,20);TAB(69)USING"###.##
";sales(rec,20):LOCATE 77,23:PRINT"";gac$(rec,20);TAB(79)"|"
1800 PRINT STRING$(79,"=")
1810 WINDOW #1,2,50,17,23: REM menu window
1820 WINDOW #2,53,78,4,23: REM sales window
1830 WINDOW #4,24,32,4,13: REM goods column
1840 WINDOW #5,33,40,4,13: REM paid column
1850 WINDOW #6,41,49,4,13: REM new balance column
1860 IF st=8 THEN 1870 ELSE 1920
1870 PRINT#8,CHR$(27)+"@":FOR y=1 TO 25
1880 FOR x=1 TO 80
1890 LOCATE x,y:CALL &A000
1900 NEXT x
1910 NEXT y
1915 st=0
1920 RETURN
1930 FOR n=1 TO 10:paid(rec,n)=0:newb(rec,n)=0:NEXT:totp(rec)=0:camt(rec)=0:CLS
#5:CLS #6:LOCATE 30,15:PRINT SPC(20):GOTO 1075
```

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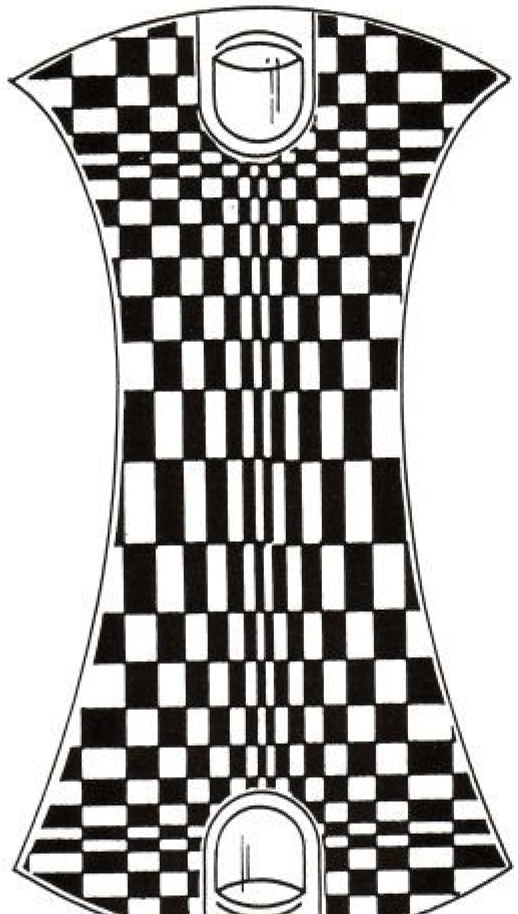
John Kennedy puts a ROM board through its paces.

MicroGenic first made the move into the home computer market when one of the directors saw the state of the products currently available. Appalled by what it saw as a general lack of quality, MicroGenic developed the *Eprom Expansion System* from scratch. Only the most reliable designs and best available components were to be used, and the result is the MicroGenic range of CPC peripherals.

The first element in the system is the Advanced Eprom Expansion Board. ROM boards are difficult things to review; they either work or they do not. This one works.

The board is supplied uncased and holds up to eight eproms. It measures about 17 x 3 cm and has a flow-through connector. It comes with a big red button, two slide switches and a bank of eight dual in line switches. The big red button is a reset switch; it is nice to have such cold reset options, but pressing it might just be too easy – even, if you are a very clumsy sort of person, by accident. However, I have not managed to press it by accident, and I am no ballet dancer. It does come in useful when you use the first slide switch, which allows all the eproms to be switched off in one go. Once it is clicked and the reset button pressed, the computer powers up with all systems go and Protext now only a vague memory. This is useful with some programs, especially games, which will not work with any ROMs present. A small LED indicates whether or not the ROMs are on.

The other slide switch is used to allow the eproms to operate under ROM numbers 8 to 15. This allows two such boards to be connected at once, just in case you have more than eight eproms. CPC464 owners should bear in mind that only extension ROMs can be used in these positions; 664/6128 owners can use all types of ROM here. This is a consequence of the design of the computers, and nothing to do with



the ROM board. The bank of horrid, fiddly DIL switches controls individual eproms and whether they are accessed or not.

The board is well built, and does everything you could expect a ROM board to do. As ROM software becomes more popular, people are starting to complain as their systems start to malfunction because of the large quantity of chips lumped on the back. The MicroGenic peripherals use high-quality components and a buffering system to ensure that the cumulative effects of various add-ons are minimised.

And now we come to the Eprom Programmer – or blower as it is referred to by those in the know. This one will program only the newer 12-volt chips, but as the 21.5-volt ones have more or less been superseded, this is not necessarily a major flaw. Both 8K (2764) and 16K (27128) types are catered for.

The Programmer also comes uncased and connects either directly to the computer or can be bolted to the MicroGenic ROM board to form a very stable unit. Clearly, the designers envisaged that whoever bought the blower would either purchase their ROM board at the same time or would already own one.

The first stage in programming an eprom, is getting the actual code together. With the MicroGenic system, the code to be burnt into the chip may exist in RAM, or on another ROM. If another ROM is to be copied, it can either be placed in the programming socket and have its contents stored in RAM, or it can be plugged into the ROM expansion board like any other ROM. This makes mass-producing ROMs very quick and easy indeed: bonus marks to MicroGenic for this.

The next step in programming involves inserting the chip into the Programmer board. On other systems this can be extremely frustrating and/or painful; several times the wretched things have flicked round and bitten me by inserting their little legs into my fingers. But blood stains on your keyboard are now a thing of the past because a Zero Insertion Force socket is supplied as standard. How, I ask, could anyone live without one?

To avoid any strain on the CPC power system, a small mains transformer is connected to the board before programming can begin. The ROM-based programming software, which is as user-friendly as the rest of the system, checks for this. There are even two little red and green LEDs to indicate whether it is safe to insert the eprom into the Zif. It is so easy to use I would be tempted to let my mother have a go . . .

The software is very fast in use, using an 'intelligent' algorithm which programs the eprom as fast as is possible. The more reliable (and slower) standard algorithm is available for those extra stubborn eproms if this fails.

With the ROM board and programmer stuck on the back of my CPC I feel I have a complete ROM expansion system. It is fast, reliable and probably the best available. It is the ideal system for those wanting to explore the exciting prospect of DIY eproms for the first time, or for those who wish to expand their present system.

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Personal designs

Marc Jones, our new staff writer, compares three leading CPC DTP packages. Budding editors read on.

Many people have many reasons for using DTP. As a consequence many manufacturers have developed and released many varied DTP packages. The Amstrad CPC, however, has missed out on the wide range of DTP products wallowed in by other computer systems but having a smaller choice does not necessarily mean having a poorer one.

Although the CPC is now renowned for its graphics capabilities, there is a small range of DTP software that covers most users' requirements. *Stop Press, Fleet Street Editor* and *Page Publisher* are three packages for the CPC that vary in capabilities as they vary in price.

Stop Press from Database Software is a comprehensive desktop publishing package, a fact which explains why it is the most expensive of the three packages mentioned above. The main screen provides the prospective typesetter and art designer with a panel of seven mode icons: Filing, Paste, Text, Graphics, Window, Printout and a Goodies mode/Page Position icon. Confused? Well, it is not as complicated as it sounds. When an icon is chosen, another menu – like a collection of files in a filing cabinet – appears to the right of the screen, containing more detailed, pull-down command menus.

The graphics capabilities of Stop Press maximise the limitations of the CPC and should consequently be sufficient for anyone who wishes to obtain graphical letters or documents from such a system. In an attempt to speed up the command process, a quick-click window has been incorporated into the menu bar. This window contains twenty command icons that provide immediate control of the graphic styles, including graphics/text output colour commands and ghosting commands. Ghosting is the name given to the process of displaying an image on the screen using only one of the two colours that make up that image.

The working area on the screen incorporates a guiding rule one centimetre from the edge of the canvas. (An inch rule is also available for those who prefer to work in imperial environments.) The rules have many uses, measuring column distances being the most common. The actual canvas area is just a proportion of a page which will scroll automatically when using the text facilities. However, normal scrolling has to be instrumented using the < move > key and cursors, and although the movement is actually quick, this can be a little nauseating.

If required, it is possible to load screens created on other graphics software from other graphics modes. Stop Press converts 'alien' graphics into what it terms mode 2. This means that every colour is given a shade or grey level. Problems have occurred with this operation in the past, although, with its powerful graphics, any damage incurred in the crossing over of images should not be too difficult to touch up with Stop Press.

In the Goodies command mode a scanner option permits the use of digitised pictures. Used in conjunction with an AMX Digitiser the program can incorporate pictures already in multi/colour modes, as opposed to the grey scale mode 2. The quality of reproduction is often better using this method.

With the desired graphics to hand, Stop Press provides you with some comprehensive command modes which give you almost optimum control over your images. The program has a cutout facility which can save a specified area of the canvas to disc. The main use of cutouts is in isolating areas of a large picture to aid composition, or – as happens frequently – to use as logos, letterheads or cartoon characters. This means that if an image is scanned into the program with areas needing to be trimmed away, the cutout facility can provide you with the tools for cutting and saving the desired area in your own clip-art library.

Stop Press provides extensive control over images. The Paste mode permits the user to manipulate the image as desired, and with the copy option a rectangular area of the canvas can be repeated. Images can also be moved using either the Flip or Rotate commands, and a stretch command allows an image or parts of it to be stretched vertically or horizontally, stretching can even double the size of an image if needed.

The text facility in DTP treats the word as a graphic with meaning. Stop Press contains some detailed text commands which enable text to be manipulated with images as well as placed in columns as expected. The Autoflow option allows text to fill areas of almost any shape, can be



fitted into a circle or can slant along a diagonal line while still being justified to the edge of the graphics.

Font sizes are adjustable using a size adjustment command, otherwise all text will remain in the standard Amstrad typeface. The Attribute option from the 'Effects' menu combines the value of both the size and the spacing measures given to each font character, and each resetting contained within the Attribute option can be saved to disc.

Overall, Stop Press is a sufficient and supremely comprehensive program – ideal for anything we could possibly expect to produce from a CPC. With a choice of fifty fonts, the program can offer the user variety and graphics capabilities that far exceed any other DTP program available for the CPC. Complexity often comes with detail, however, and Stop Press is not exempt from this. At £49.95 it is also the most expensive of the DTP programs discussed here, but it is important to realise that if you want a

highly detailed and powerful package, you do have to pay for it. Alternatively there is *Fleet Street Editor* (FSE) from Mirrorsoft, which parades itself as a competitor to Stop Press. This seems a little unjustified, however, as FSE does not deal with the vast amount of ground covered by Stop Press, even if it is a DTP program. FSE takes a slightly different approach and does not attempt to be too highbrow. In some respects it deals with the whole idea a little better.

What strikes you initially is that the documentation is extremely helpful and easy to use; information is divided into three distinct groups, which correspond with departments in a typical publishing house. A Guided Tour is also included which takes you step by step through the commands and options available, creating a newsletter at the same time. This is a good idea because it acts as a teacher rather than as a mere reference manual.

The program itself is also easy to use, with three distinct working areas. The desired department is chosen from the opening screen, where three symbols represent the Art Studio, the Copydesk and the Administration department.

The Art Studio contains a menu bar across the top of the screen with eighteen command icons for creating and controlling graphic images. Each icon produces a pull-down menu containing specifications of the desired command. The icons are only reached, however, by using the < Shift > key, which allows the cursor to travel beyond the canvas boundary.

The drawing facilities are adequate with a range of brush sizes and six brush patterns. There is an actual Draw icon which enables you to draw a thin straight line wherever you need one and a Roller icon which will 'whitewash' your canvas with the desired pattern. These features are all sufficient, as you would expect from such a program. Detailed graphics require more power and control although, with a little patience, it is surprising what can be achieved with the creative and manipulative tools in your possession.

FSE also comes with a separate disc containing a Graphics Library. This is a welcome addition as it comprises a selection of ready-made clip-art which may be of some use to the apprehensive beginner.

With your graphics safely stored in the Art Studio, it is perhaps time to go to work at the Copydesk. The Copydesk working area also contains a menu bar across the top but the pull-down menus are: File, Layout, Art, Justify, Edit and Font. There are fifteen fonts in FSE – adequate for any DTP package of this calibre. To reach the commands and disengage the Text writing function the < esc > key has to be used.

The Art command allows you to retrieve artwork stored in the Art Studio or the Art Library, in order to incorporate it in the document you are working on. The other commands contain the tools you require to manipulate your document through pasting and copying to layout creation.

The FSE Administration Department is where you control your files and discs. It is also possible to alter the colours of your screen display from the Colours menu.

To finish your lesson in DTP, the FSE documentation guides you through the real publishing process of putting all the pieces together – from editing to duplication, right up to the stitching of your document. This is a fine example of Mirrorsoft's attempt to introduce new users to the world of DTP, providing a complete introduction to the publishing process and an easy-to-use DTP program at the same time. The Mirrorsoft approach takes nothing for granted.

The program itself has nothing different or new from the Stop Press package and consequently it does not attempt to compete with it in terms of technological facilities. Fleet Street Editor is ideal for those who want to learn the basics of a DTP system and who want to produce quality documents at the same time. Priced at £39.99 the package is not particularly cheap, but it is efficient and reliable in its execution.

The third package, *Page Publisher* from CD Microsystems, is a budget-priced alternative to Stop Press and Fleet Street Editor. Priced at £24.95 it is the cheapest of the three programs, thus becoming immediately attractive to those who do not wish to achieve wonders with their CPC.

Page Publisher is a good program that covers almost everything offered by the other two but to a lesser degree. Unlike FSE there is only one canvas area, but for some this may be preferable. The icon menu at the top of the screen contains all the main commands for the program, these are accessible by moving the cursor off the canvas to the desired icon.

The drawing capabilities of the program are not as impressive as its high-end competitors, although its manipulative abilities are surprisingly good. With ten types of pen, four brush sizes and four different nozzle sizes for the spray (with a choice of low, medium or high intensity), the Page Publisher seems to be a cutout version of the other two packages.

The program is easy to use and does not attempt to be something that it is not. This honesty is to its advantage as it entirely justifies its price. SD Microsystems is releasing an add-on program with extra fonts and a clip-art library which will be available early this year at a further cost of £10. There are also developments afoot to release the program on tape.

All three of these DTP packs are aimed at slightly different users and are consequently priced to suit. Stop Press is the top package for the CPC but is expensive and detailed, ideal for a serious user who wants to produce good-quality documents. Fleet Street Editor is at the middle of the range, attracting users from all angles, whereas Page Publisher is aimed at users with smaller needs and wallets. To maximise the potential of all three programs it would be advisable to use a mouse. There are many mice on offer for the CPC but that is another story for another issue.

DTP for the CPC is sufficient for most users' needs. In many ways it can act as an introduction to the essential basics of desktop publishing and consequently it can provide the budding DTP designer with the necessary grounding for the bigger and more powerful packages of the PC world.

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Safety first

Gordon Bates looks at a few ways of making your modem a little more secure against the slings and arrows of outrageous telephone lines.



Last month we looked at the basics of file transfer protocols, and why they were dreamed up in the first place, as well as having a quick gander at how they actually work. This month, we are going to take that a stage further, and will consider some of the knobs and whistles that get tagged onto modems and some terminal software to make the whole thing that much more bomb-proof.

The major innovation going the rounds on modems at the moment is something called MNP, which stands for Microcom Networking Protocol. It comes in nine different flavours, but only the first five of them are actually readily available to the man in the street.

These are, not surprisingly, levels 1 to 5. Now, what on earth does that lot mean. Let us start at the beginning. You may remember that last month we touched on the subject of line noise — lions for short (a bit of comms-speak that enthusiasts adopt, so we will use it).

Lions are caused when the modem's signal is interfered with by extraneous crackles and pops on the telephone line, causing characters to appear at either end of the link that were not supposed to appear. Microcom, an American firm, decided to do something about this, and not just in file transfer protocols.

What they did, very simply, was to build some more intelligence into an intelligent (Hayes standard) modem, and allow two such modems to agree to use something similar to a file transfer protocol on a character by character basis, rather than on a packet by packet basis.

If you are unsure about this, remember that a packet of data may be from two bytes, together with a header and footer, to any number of bytes with a header and footer. The MNP idea was to make sure that if a character became corrupted, because of lions, then the two modems would sort out the problem, without the software running on the computer at either end becoming involved. In other words, it should be transparent to the user – he should not see that there is a problem, and the modems just take care of it.

The different levels of MNP represent different stages of sophistication in the error correction process (at least up to level 4), and level 5 brings in the idea of data compression. To explain a little further, if two modems are communicating at level 1 MNP, then there would be a significant loss in the speed of data transmission. In other words, because of the way each modem checked what was being sent and received, the data had to be slowed down. Each level, up to 4, increased the effective speed at which data was pushed through the chain, until at level 4, 1200 bits per second meant 1200 bits per second from computer to computer, and not just modem to modem.

Lower levels allow for, say, 1200 bits per second from modem to modem, but might only allow, say, 600 bits per second from computer to computer. The difference between an MNP con-

nection and a non-MNP connection would be that the data transferred in an MNP connection should be guaranteed to be correct, whereas a non-MNP connection may well not be, as lions could get in the way, and cause corruption.

With level 5, compression of the data allows effective computer to computer speeds to approach double the modem to modem speed. So, at 1200 bps modem to modem, you might actually get nearer 2400 bps computer to computer. That is significant, in anybody's language.

Again, it is not really important to know how it happens, but a little background as to why it is done might help. Some commercial services, like Telecom Gold, for instance, are primarily Electronic Mail services. This means that they are very useful for sending messages from one user to another, even across the globe.

Now, there are two ways to get a message into Telecom Gold (without considering file transfers, which can add complications, and slow the process by quite a considerable time). The first is to type the message in online. This takes lots of time, and time, in TG terms, costs money.

The other way is to sit at your word processor, and type out your message, edit it, spell-check it, and generally fiddle about until you are happy with it. Once that has been done, you save it as an ASCII file, rather than in your WP's native mode. Then comes the time saving (=money) part. You specify the recipient's address online, and use a facility built into every scrolling comms package. I have seen to send the file as though you were typing it in. It is called an ASCII transfer, sometimes referred to as spooling (incorrectly, I might add).

Now, an ASCII transfer has no error detecting or correcting protocols. As I said just a few lines ago, it looks to the receiving end as though you are a very fast typist, and that is all. Without MNP, the message can very easily become corrupted, lose any formatting that you may have included, and, at worst, deliver a dangerous command to the receiving software. And yes, I have had it happen to me.

With MNP however, especially at level 5, however, the receiving software never sees anything other than the text file as you created it – the MNP software in the two modems sees to that. It also gets it maybe twice as fast as it would if you were using the same modem to modem speed without MNP 5 enabled. Pretty impressive, huh?

One of the reasons I have gone into this at some length is because Focal Point, our Bulletin Board (nay, your Bulletin Board) will, at times (and hopefully all the time) have an MNP 5 enabled modem on it. That modem will try to talk to yours, to see whether or not it has any level of MNP available to it, just to make things more 'reliable', and thus faster (if levels 4 or 5 are available).

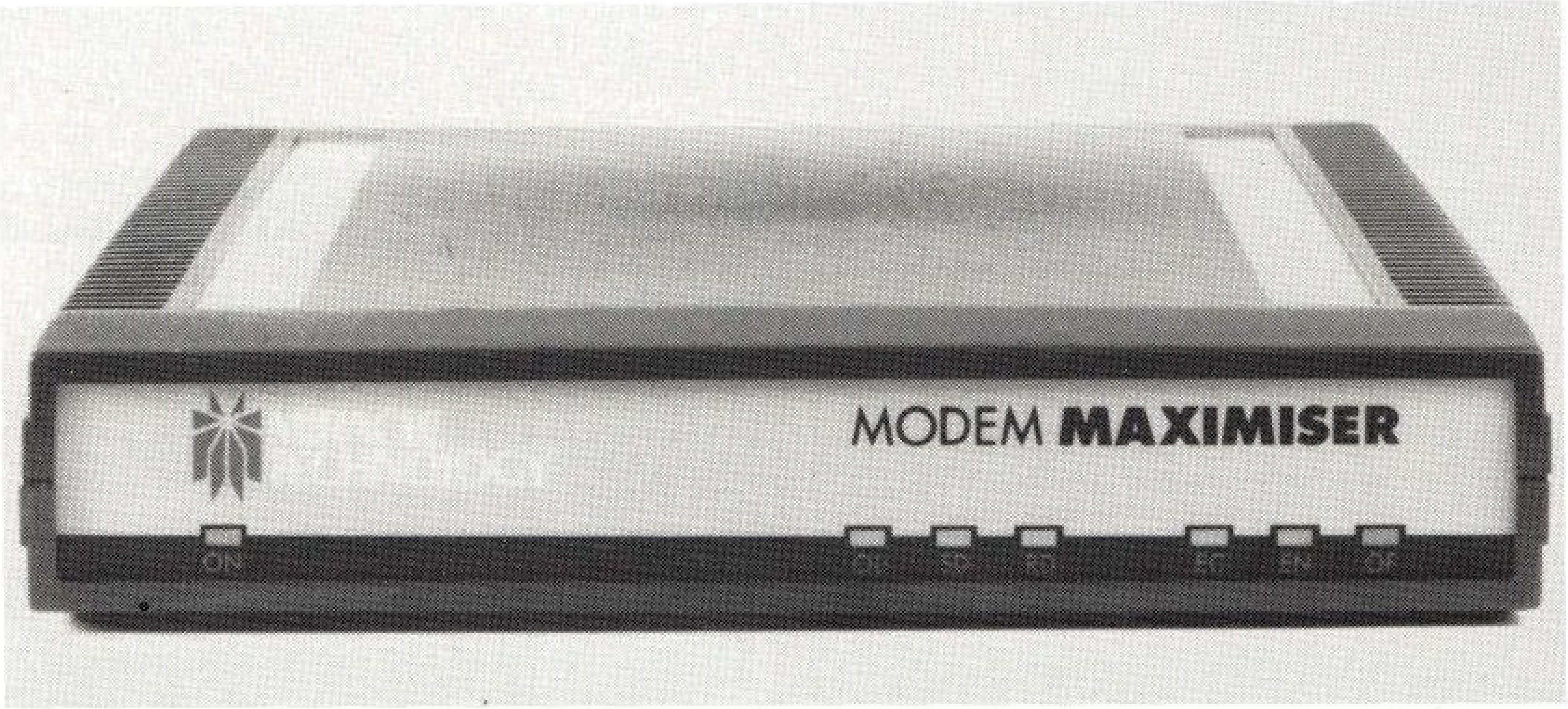
So, do not be surprised if you log onto a BBS and things seem to take a little while to get going. It only means that the BBS has MNP on it, and is trying to 'negotiate' and MNP link.

And what about you using MNP? At the moment, the cheapest MNP5 modem that I know about is the Dataphone Pro-4 quad speed modem, at less than £400 and BT approved. Its cousin, the Hitech EC2400 is not BT approved (and therefore I cannot officially recommend it to you), but is around £100 cheaper, and is identical in everything but looks. If you can stand a garish orange front panel, it could be well worth considering, but I did not tell you that! Okay?

If you wanted to be really flash, you could go for a Racal-Milgo Maxam-V modem, which has MNP to level 5, as well as 9600 bits per second full duplex (which just means that both ends can talk at once, like a phone call), and moves data at an incredible rate (like well over 17000 bits per second on my PC Compatible, pose, pose), working out at around Ik per second. That is faster than a 464 cassette deck.

Mind you, there is a cost attached to it – almost £1000 before you put the inevitable VAT into the equation, but what a beast! Some day all modems will be this fast.

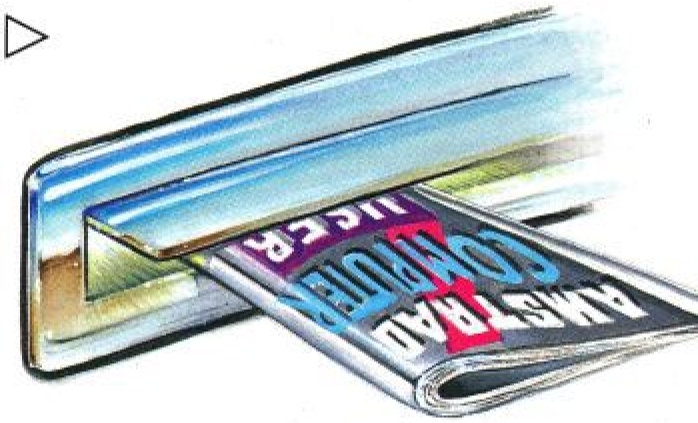
Right, that is all for this month. A little bit more technical than usual, but you can cope can't you. I am off to have a look round a few BBSs, including *Focal Point*. If you log on there (and I hope you do), leave me a message won't you! You never know, you might see some of it in this column in a month or two, and be rich and famous (well, famous anyway!) Be seeing you around the systems.



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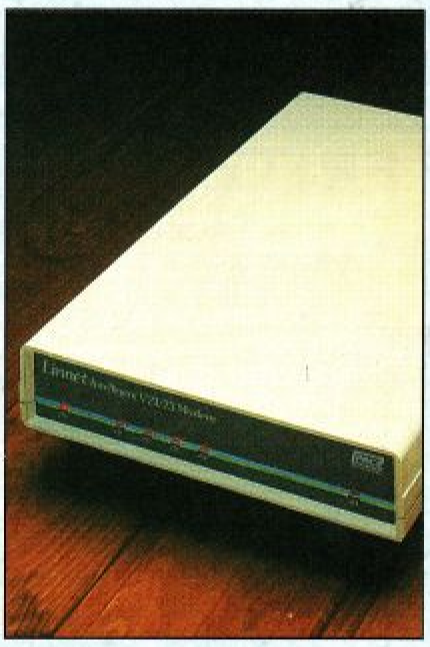
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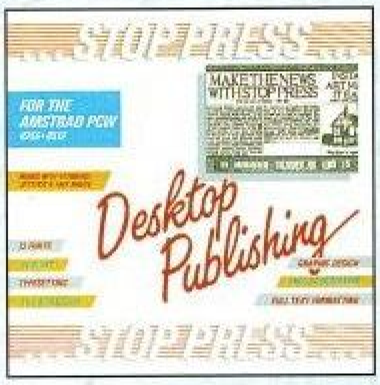
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